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Action Pends On Motor Code

Packard Prices at Last Year's Levels

Prices on the new Packard models (described on pages 256-259 of this issue) will be approximately the same as those announced last year when the 1934 line was launched, according to M. M. Gilman, vice-president in charge of sales. This would make the standard five-passenger sedans on the eight, super-eight and twelve chassis list at about $2,350, $2,950 and $3,960 respectively.

Snyder Machine Objects To W-O Canadian Deal

Due to the filing of a formal objection by the Snyder Machine & Tool Co., Detroit, a creditor of Willys-Overland Co., to the proposed sale of the Willys-Overland Canadian plant and the severance of relations between the Canadian subsidiaries and parent company, a hearing on the case was held Thursday in the Federal Court at Toledo.

Report Car Makers Agreeable To Renewal Without Change

WASHINGTON, Aug. 30—No definite conclusion had been reached on the renewal of the automobile manufacturing code which expires next Tuesday, September 4, up to closing time today for this issue of *Automotive Industries.*

According to reports, directors of the Automobile Manufacturers Association, to whom the matter was referred last week by the members, have not met. It is understood, however, that the industry is not unagreeable to renewing the code without change and to the continuation of the President's settlement of the automobile strike threatened last spring. There is no disposition on the part of the industry's leaders to accept any change in the merit clause, the elimination of which has been demanded by the American Federation of Labor.

NRA officials indicated to *Automotive Industries* yesterday that unless major changes are requested by the industry, and it does not appear probable that any revisions of that nature will be asked by the motor manufacturers in the light of the above reports, any extension plan which may be submitted will be given a quick survey and then rushed to Hyde Park for signature by President Roosevelt. This program conflicts with NRA's statement last week that "It is the intention of the administration in view of pressing requests from affected interests, that the proposal of the industry when made shall be the subject of public hearings." However, because of the shortness of time between now and the expiration date of the code, it is difficult to see how a hearing could be squeezed in, particularly in view of the Labor Day holiday.

Confidence that the code would not be allowed to expire next Tuesday was expressed here. It was pointed out that 'there is no precedent for allowing the code to lapse as all other limited-period codes have been extended when their time was up and the NRA is expected to exert every necessary effort to keep the automobile code alive.

Late Aug. Sales Volume Fair; Sept. Output Hinges on Demand

Motor car production is holding up sufficiently well so that prolonged shutdowns during Labor Day week are not contemplated by most companies. Aside from the Ford Motor Co., which closed its Rouge plant on Aug. 24, and will not reopen until Sept. 7, automobile factories will be idle for only two or three days and in some cases only on Labor Day. Pontiac is suspending operations from Thursday until Tuesday, while Graham-Paige will be down the first three days of the coming week. Plans of some of the larger manufacturers still are undetermined with the chances favoring a suspension of activities only on Labor Day.

September schedules are as yet rather indefinite. Assemblies will be kept closely in line with retail demand and are likely to fluctuate considerably from week to week with tentative projected output at the beginning of the month subject to sudden changes. Retail sales are tapering somewhat but the volume in the aggregate is being maintained at a fairly high level for this time of the year.

The industry is hopeful that the amount of money which the Federal Government now is pouring into rural districts in payment for crop restrictions will be spent immediately, and that a generous share of it will go for new automobiles. The stimulating effect of these cash disbursements may help September sales considerably. Until a few

(*Turn to page 247, please*)

Knudsen Addresses Grads

W. S. Knudsen, executive vice-president of General Motors, was the commencement speaker at General Motors Institute in Flint Tuesday evening when 107 young men were graduated. The graduating class consisted of 74 men who have completed the four-year cooperative engineering course, 29 from two-year cooperative mechanical training course and four from a year's post graduate work on Diesel engines.

July Automotive Employment Record Led Production, But Payrolls Decline

Automotive employment held up better than production in July as compared with June, but the decline in payrolls was greater than the decrease in production, according to indexes released this week by the Federal Reserve Board.

The data show that July production was 12 per cent under June, employment 8 per cent under, and payrolls 17 per cent under. After adjustment for seasonal variation, the June-July contraction was of somewhat more than usual proportions. This year's July figures, however, were all substantially in excess of the same month last year.

The extent to which the industry resorted to work-sharing during July to minimize unemployment in face of lower production, is indicated by the fact that the index of employment per car produced increased from 115 in June to 120 in July and compared with 92 in July a year ago. Payroll per car produced, on the other hand, declined from 93 in June to 87 in July, but was far above the index for the same month in 1933.

Average earnings per worker stood at 72 as compared with 80 in June and 74 in July last year. In view of the increase in the cost of living which has taken place in the last 12 months, it would appear from these indexes that the real wages of the employed automotive worker declined somewhat more than the two point decrease in the index of average earnings would indicate.

The data are summarized in the following table:

(1923-1925 = 100)

	July 1934	June 1934	July 1933
Adjusted for Seasonal Variation:			
Automotive production....	78	82	69
Automotive employment..	95	101	64
Without Seasonal Adjustment:			
Automotive production....	82	93	72
Automotive employment..	98	107	66
Automotive payrolls.....	71	86	49
Pay per worker*.....	72	80	74
Employment per car produced*	120	115	92
Payroll per car produced*.	87	93	68

*Derived indexes.

Hartz Completes Economy Run in Chrysler Airflow

Harry Hartz, former A.A.A. champion, who, with Wilbur Shaw as alternate driver, recently established 72 new A.A.A. Contest Board stock car records on the Bonneville, Utah, course, in an Airflow Chrysler Imperial Coupe, with automatic overdrive, has just finished an economy run from Los Angeles to New York in this same car. On this transcontinental run, the car averaged 18.1 miles to the gallon of gasoline. The run was under A.A.A. contest board sanction, with Lee Oldfield as observer.

The Airflow Imperial set a complete set of new closed stock car speed records with flying start, taking every A.A.A. contest board mark for from one kilometer to 24 hours. The Airflow Imperial averaged 95.7 miles an hour for one mile; 90.04 for 500 miles; 84.32 for 2,000 miles and 84.43 for 24 hours. It was the first car ever to make more than 2,000 miles in 24 hours, the new record being 2026.40 miles. These records were made on a 10-mile circular course laid out on the salt beds in Utah.

Truck Supplement Draft Promised for This Week

A draft of a proposed supplement which would bring trucks of all capacities under the marketing rules of the Motor Vehicle Retailing Trade Code, is to be submitted to State Advisory Committees for consideration this week by the National Control Committee, according to a bulletin issued by the latter committee. The marketing rules of the dealer code at present apply only to trucks of ¾-ton rating or less.

Various phases of the supplement were discussed last week by manufacturer and dealer representatives in a meeting held in Detroit. While the draft referred above is based on these discussions, it is understood that no final decision was reached at the meeting and that various aspects of the supplement are to be the subject of further discussions.

O'Rourke Assumes Faulkner's Duties

The resignation of Roy H. Faulkner from Pierce-Arrow to accept the presidency of the Auburn Motor Car Company, places Thomas J. O'Rourke, Pierce-Arrow's general sales manager, in leadership of the company's national sales organization, it was announced by Arthur J. Chanter, president.

Mr. O'Rourke, who has been with Pierce-Arrow for 28 years, was notified of the widened scope of his duties upon his return from Detroit, where he attended a special meeting of the National Automobile Chamber of Commerce.

After holding various executive positions in both the manufacturing and sales departments, Mr. O'Rourke four years ago was appointed as assistant to the president. He received his appointment as general sales manager last July. Mr. O'Rourke also is a director of the Pierce-Arrow Sales Corporation.

Thomas J. O'Rourke

N. Y. Shackno Act Under Fire In Federal Suit

Attack Constitutionality Of NRA Reinforcing Law In Injunction Proceeding

Briefs and supporting affidavits were filed Aug. 27 in Federal Statutory Court in the suit of the Spielman Chevrolet Corp., New York, to restrain the District Attorney of New York County from enforcing the provisions of the Motor-Vehicle Retail Code, as reinforced in New York State by the Shackno Act.

It was learned after the briefs were filed that the Spielman Corp. had already been cited in a state court for violation of the motor-vehicle retailing code, and that the injunction suit was a counter attack. The District Attorney's office has agreed to a postponement of the suit in the state court in order that the constitutionality of the Shackno act may be established in the Federal Statutory Court.

Specifically under attack by the Spielman Corp. are the operations of the Official Used Car Guide, and the prices set by it for trade-in values.

Particular interest attaches to the case because in the 200-page brief filed by attorneys for the Spielman Corp. there are attached affidavits covering all phases of used-car trading operations. Attempts have been made to obtain opinions from all passenger-car manufacturers and the Automobile Manufacturers Association relative to the method of collecting prices for the Official Used Car Guide. Few opinions were expressed, it is understood.

Automobile circles in New York are watching the case with great interest, because, in addition to covering broadly the legal aspects of the motor-vehicle retailing code, it attacks the validity of the whole NRA price-fixing structure. It is expected that a decision on the case may be handed down within the next month.

Would Base Steel Prices at Detroit

Rotary Electric Asks Code Authority to OK

Rotary Electric Steel Co. has asked the steel code authority for permission to establish Detroit base prices on merchant steel bars, cold drawn bars and cold rolled strip steel. At present merchant steel bars and cold drawn bars are sold at arbitrary delivered prices at Detroit and other southern Michigan cities, these prices being lower than the Pittsburgh base price plus all-rail freight rate from Pittsburgh to Detroit. Cold-rolled strip steel is sold on the basis of a Cleveland mill price plus all-rail freight to Detroit.

Establishment of Detroit as a basing point such as Rotary Electric Steel proposes has long been favored by large automotive steel users which have objected to paying freight rates from Pittsburgh to Detroit on steel made in the Detroit district. On the other hand, the setting up of a Detroit basing system would give no assurance that delivered steel prices would be materially lower than they are now since the present schedule of arbitrary delivered prices represents a considerable concession to large steel users on the part of the steel industry.

Outstate steel consumers are said to lack enthusiasm for the proposed plan since it would put them at a disadvantage compared with Detroit competitors in buying steel. It appears unlikely that Rotary Electric's request will be granted at this time because government agencies now investigating the entire system of basing points will not be ready to make a report for several more months and meanwhile probably will not wish to disturb the present status.

Congratulations from the Boss

Harlow H. Curtice, Buick President (left) congratulates W. F. Hufstader, general sales manager of Buick, when the latter reported that more Buick cars have been sold thus far in 1934 than in all of 1933

A. C. Faeh

who has accepted the managership of the Chicago Automobile Show. Mr. Faeh formerly was manager of the Chicago Automobile Trade Association and assistant manager of N.A.D.A. Show headquarters are in the Congress Hotel

Expect Packard Machine Tool Orders This Week

Packard Motor Car Co. is expected this week to place orders for machine tool equipment in connection with manufacture of its proposed lighter car. Initial buying will be for the cylinder block and crankshaft lines. Final decision has not been made according to current reports as to whether the transmission and rear end of the new car will be built in the Packard plant or bought outside. The engine will be manufactured by Packard. Equipment expenditures may run as high as $1,000,000.

AFL Plans to Reorganize Seceded Hudson Local

According to the American Federation of Labor in convention at Atlantic City, plans for reorganization of the Hudson local of the United Automobile Workers are being formulated.

The reported "withdrawal" of the Hudson local from the A. F. of L. recently has been credited by Federation officials to the fact that an attempt has been made to form a "Company Union" among the men.

Secondary Parts Line Held to Be Unprofitable

That secondary lines of replacement parts brought out to enable jobbers and independent retailers to meet chain store competition have not proven profitable to either jobbers or manufacturers is indicated in a bulletin issued by the N.S.P.A. Part of the trouble is asserted to be due to the practice of some jobbers of selling these secondary lines at standard prices instead of taking advantage of the opportunity they offer to meet price competition.

Leaf Spring Institute Elects New Officials

The Leaf Spring Institute of America has elected the following officers for the coming year: C. C. Bradford, Eaton Products Co., Cleveland, president; F. E. Bedger, Detroit Steel Products Co., Detroit, vice-president; F. J. Trainor, Trainor National Spring Co., New Castle, Ind., vice-president; G. B. Secor, Mather Spring Co., Toledo, and L. S. Moremont, Moremont Automatic Products Co., Chicago, members of the executive committee.

J. H. Shoemaker, national commissioner of the leaf spring industry, presided.

Faulkner Returns To Auburn As Pres.

Succeeds W. H. Beal Who Becomes Manning's Aide and Cord Vice President

Roy H. Faulkner has resigned as Pierce-Arrow vice-president to return to the presidency of Auburn Automobile Co., which office he relinquished in November, 1931.

The announcement of his appointment was made by L. B. Manning, executive vice-president of Cord Corporation at a meeting of Auburn dealers and distributors, held at the Connersville factory on Friday, Aug. 24, when there was a preshowing of new models which are announced elsewhere in this issue. W. H. Beal, who has been president of Auburn for the past two-and-a-half years, becomes a vice-president of Cord Corp. and an assistant to Mr. Manning.

One of the best-known executives in the industry, Mr. Faulkner previously carried the major executive responsibilities at Auburn during the period of its greatest success and his retirement as president in 1931 came as an unexpected shock to the trade at that time. Cord Corp. interests were directly responsible for his return, indicating that whatever differences may previously have existed, have now been completely obliterated.

The announcement of his return was greeted with a tremendous ovation by the hundreds of dealers and distributors at the Connersville meeting, while several merchants in Auburn, where Mr. Faulkner will make his headquarters, ran newspaper advertisements announcing special price reductions on merchandise for the day in honor of his return. On Wednesday, Aug. 29, the townsfolk of Auburn held a special dinner to welcome Mr. Faulkner officially.

Mr. Faulkner will leave next week for a swing through the country to consult with distributors and dealers, preparatory to mapping out details of sales and manufacturing programs for 1935. The new line of cars which is just being announced by Auburn will be continued indefinitely, but rumors have started already of startling additions to the line early in 1935.

Mr. Faulkner's assumption of the Auburn presidency undoubtedly will mark the beginning of a renewed drive for increased dealer and distributor representation in all parts of the country. There is some evidence to indicate that his plan of operation will rely more heavily on the distributor type of merchandising setup than has been common in the automobile business in recent years.

Roy H. Faulkner

Questioned as regards merger possibilities as a part of the move which brought Mr. Faulkner back to Auburn, neither Mr. Faulkner nor Mr. Manning had any statement to make. Inevitably the rumors of a combination with Pierce-Arrow have been stimulated again, Mr. Faulkner having been vice-president of that company which has just made application for reorganization under the new Federal statute regulating corporate reorganization. It is evident, however, that no merger with any other company or companies is directly and immediately involved in the move which returned Mr. Faulkner to Auburn, although speculation regarding possible moves at some future time seem to have been enlivened rather than enfeebled.

Since leaving Auburn in 1931, Mr. Faulkner has served successively as vice-president of Studebaker Sales Corp. and vice-president in charge of sales of the Pierce-Arrow Motor Car Co. As is generally known, he has spent almost his entire business life in the automobile sales field, beginning first as a retail salesman for Oakland in Pittsburgh, moving ahead as sales manager for the Reo and Stutz dealer in the same city and later as manager of the retail branch of the Frank Santry Motor Co., Nash distributors in Cincinnati.

He went to Auburn in 1922 as sales manager and continued in that capacity when E. L. Cord took charge in 1924. Mr. Cord later made him vice-president in charge of sales, then vice-president and general manager and finally president. He is 47 years old and was born in Pittsburgh, Pa.

Mr. Manning also announced that H. T. Ames has been appointed vice-president of Auburn.

Factories Urged to Cancel Chiselers in Vigorous Letter from Fred Vesper

Dealer demands for factory cooperation in the enforcement of the retailer's code have been placed squarely before the car makers by F. W. A. Vesper, chairman on the National Control Committee of the Motor Vehicle Retailing Code.

In a letter sent to all members of the National Automobile Chamber of Commerce, Mr. Vesper, who also is president of the National Automobile Dealers Assn., declares that ". . . unless the factory is absolutely interested in cleaning up the situation to a point where it is willing to put the chiseler out of business, if need be, and having done so, other factories will agree not to take him on," factory statements "that they are not favorable to the chiseler, that they want to see him (the chiseler) eliminated . . would lack sincerity."

Asserting his belief that the code is here to stay in some form or other, Mr. Vesper says that "the smart manufacturer will be one who builds up his good dealers by eliminating the chiseler whose methods have in the past brought the whole industry into disrepute." He continues that the code has improved the used car operations of dealers but that delay in prosecution has built up the impression in some quarters that the code is breaking down. Despite such procrastination, however, Mr. Vesper intimates that chiselers are due for some early surprises.

"The large majority of good dealers are definitely favorable and behind the Code. . . . This is true of some of the factories and it is surprising that from these there is practically never a complaint for violation against their dealers.

"On the other hand some factories have taken . . . a neutral position, which, after all, is nothing more than a negative one in that it has reflected itself on some of the dealers to a point where there has been built up an impression, highly exaggerated, I am sure, that the factory was definitely opposed to the Code. . . . I am sure that is not the case, but a neutral position can no longer be taken by the manufacturers."

Pointing to the harm a chiseler can do not only to competing dealers but also to dealers handling the same line while a case is being fought through the courts, Mr. Vesper implies that the issue can no longer be straddled. "The time has arrived when manufacturers must decide whether to throw their full support to the good dealer and assist him in every possible way to build up, or decide that the matter of chiseling has their full approval, if not encouragement . . . it is going to be necessary within a comparatively short time for all factories to declare their position definitely regarding the Code. . . ."

New Tire Floor Price Schedules Provide For Economic Planning

If the new schedules of floor prices for tires below which sales may not be made between Aug. 27 and Oct. 1, which were announced by NRA this week, are indicative of administration policy, and not merely an expedient to meet a difficult situation, the move has far-reaching implications. The schedules provide for a degree of economic planning since they are intended to influence the division of the market among the different classes of manufacturers and distributors. Inasmuch as this is the first attempt of this character to be made in the automotive field, the development is of more than passing interest to the motor industry.

The new schedules establish five groups of retail tire distributors. Group I, for which the highest floor is established, consists of Firestone, General, Goodrich, Goodyear and United States. Group II consists of private brand tires distributed through outlets whose principal business is marketing petroleum products. Included in Group III are tires sold through Montgomery Ward and Sears, Roebuck retail stores and the products of 16 independent companies as well as 10 special brands of the larger manufacturers making up Group I. Group V carries the lowest floor price and covers tires sold by catalog and delivered by mail, express or freight. All others are included in Group IV.

Whereas, when floor prices were first established several months ago, uniform minimum prices were set for first, second and third line tires, under the new schedules different floors are established in addition for the various groups. For 4 ply, 4.75 x 19 in. tires, the new and old floors are as shown in the accompanying table.

The prices themselves, of course, are only of immediate economic significance, but the grouping, since the preferential treatment provided for certain elements, represents a form of economic planning. There is no indication in the NRA announcement of the schedules that the preferences are necessarily based on costs of production and distribution, or on differences of quality. In fact, the implication of the announcement is the preferences were established among the five groups to slow up changes which NRA says are taking place in the channels of distribution if not actually to maintain the status quo.

"When minimum prices were set in May," NRA says, "it was felt by tire manufacturers that the retail market prices of well-known tires would be maintained above the low levels and that the differentials previously existing would be maintained. The intensity of competition, which came with declining volume, brought all prices to the lowest reasonable cost. Investigation . . . indicated that small manufacturers and independent tire distributors were not obtaining their customary shares of the reduced volume of business."

"The new prices," NRA says subsequently, "relieve the strain on small manufacturers and retailers, and yet permit the economies of efficient distribution to be passed on to consumers. The lower floor prices are of particular advantage to customers in farm areas, where purchasing power has been reduced by the drought. Distributors in these areas have particularly pressed for price differentials, and mail order prices recognize the differentials which experience has indicated as necessary in relation to prices of similar tires sold in store outlets of mail order houses. This differential proceeds partly from the costs of money orders, mounting, etc., which are met by the customer direct."

The announcement justifies the higher minimums set for Group I tires on the ground that they are nationally advertised and have wide consumer acceptance. This is the only explanation offered. It is commonly thought that advertising and a good reputation tend to permit lower prices due to increased volume and reduced sales resistance, but here they are used to justify higher prices. No special explanation is given for the other groups, except as quoted in the foregoing.

	First Line		Second Line		Third Line		Truck Tires 6.00 x 20	
	Old	New	Old	New	Old	New	Old	New
Group I	$6.70	$7.45	$6.10	$6.45	$5.20	$5.20	$14.20	$14.20
Group II	6.70	6.95	6.10	....	....	....	14.20	13.75
Group III	6.70	6.70	6.10	6.10	5.20	4.95	14.20	13.50
Group IV	6.70	6.45	6.10	5.85	5.20	4.70	14.20	13.05
Group V	6.70	5.75	6.10	5.10	5.20	4.20	14.20	12.65

August Sales

(*Continued from page* 243)

weeks ago the Southwest, including Oklahoma City, Dallas, Houston and El Paso, was relatively the most active market in the country, according to a leading manufacturer of low price cars. However, the drought recently has cut down sales sharply in that region. The Southeast, prospering as the result of satisfactory crops, expanding industrial operations and distribution of government money, is today one of the best areas for automobile sales.

Plymouth Motor Corporation reports that it made retail deliveries of 7,195 cars during the week ended Aug. 25, a gain of 2 per cent over the corresponding week a year ago. The week just closed was the 28th consecutive week in which Plymouth's retail sales exceeded those of the same week of last year.

Domestic sales of Buicks to date are 43,561, nearly 300 more Buicks than were sold in all of last year, and the combined domestic and export sales of 49,953 exceeds the total for all of 1933 by more than 4,500 cars.

Hudson retail sales for the first seven months of 1934, for the United States only, aggregated 41,509 cars, an increase of 79 per cent as compared with retail sales of 23,160 cars reported for the corresponding period last year.

APEM Code Budget Fixed at $89,192

The Code Authority for the automotive parts and equipment manufacturing industry has submitted for NRA approval an $89,192.90 budget, the estimated amount of code administration expense for the period from January 1, 1934, to December 31, 1934.

The proposed basis of contribution for budget support is as follows: For second half year 1934 (six months), 40 cents per employee, based on number of employees reported to Code Authority for four-week period ending March 10, 1934; with a minimum of $20 for each manufacturer having less than 50 employees.

It is estimated that there are 900 establishments to be assessed.

Objections to the proposed budget must reach Deputy Administrator Roberts Sept. 10.

Real Estate Agency Sues Pierce-Arrow

The proposed reorganization of Pierce-Arrow may be held up pending settlement of a suit reported to have been brought against it by a Brooklyn real estate agency, according to the United Press. The controversy is said to center about a lease on a property in Brooklyn which the agency rented to the company, and which the company wants to abandon. According to the report the real estate organization asks that a special master be appointed to examine the Pierce-Arrow officers as to the true condition of the company.

"Flivver" Plane Bids Range, $750 to $6,670

Bids received at the Bureau of Air Commerce, Department of Commerce, on 25 "flivver" planes ranged from $750 each to $6,670 per plane, the bureau announces. The low bid of $750 per plane has been rejected by the department because the machines failed to meet specifications, and the bid was entered by a manufacturer who has no NRA compliance certificate, and who failed to enter the required bond with his proposal. The next lowest bid was $1,650.

4th Quarter Steel Price Change Unlikely

Detroit District Busy Filling Odds and Ends for Automotive Industry

Interest in the steel market this week centers almost wholly in how soon following the Labor holiday more active demand will make itself felt. Fourth quarter prices, reported to have been filed by leading producers, are assumed to have developed no change from going prices.

Under Code regulations, Sept. 1 is the first day on which fourth quarter business may be booked. Some of the finishing mills, it is reported, did not file sufficiently early to permit their opening fourth quarter books on that date. Apparently they figured they would lose nothing by this, as the only demand in sight is for prompt delivery and such orders would be filled and billed anyway during the remainder of the third quarter. The surprise which the market got at the time of filing of lower flat steel prices by one of the "independents" in July may have been responsible to some extent for this dilatoriness.

Odds and ends orders from automotive consumers have been keeping up remarkably well. This is indicated by the relatively high rate at which Detroit and nearby finishing mills have been able to operate in the last few weeks while heavy products mills in the Pittsburgh district registered one sharp decline after another.

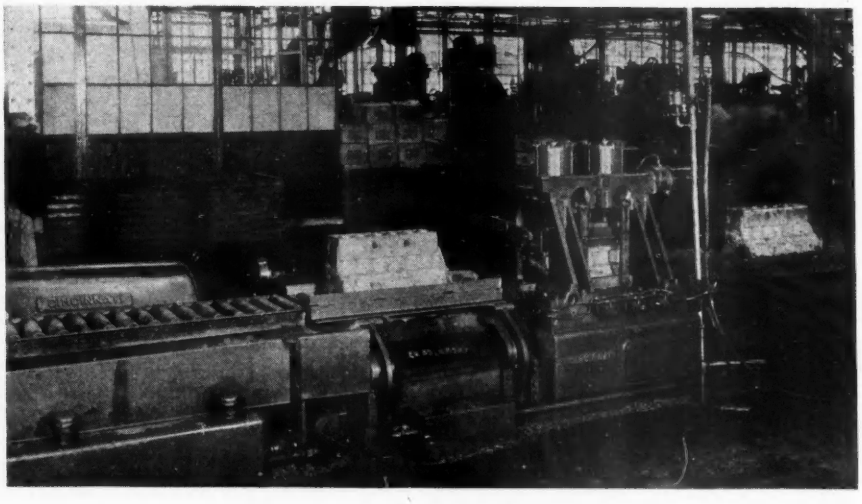
For the current week the American Iron and Steel Institute reported a further dip in steel mill operations to 19.1 per cent of ingot capacity, the lowest figure since the Institute has issued weekly operating reports. In contrast with this disappointing appraisal of the steel industry as a whole, that part of it which caters to the automotive industries presents at least a picture that justifies the hope that from now on conservative gains in activity may be looked for.

Pig Iron—Producers have been rather slow in filing their fourth quarter prices. None of the price schedules recorded so far shows any change from third quarter levels. Current business is light and entirely restricted to single carloads.

Copper—Dull. Europeans continue to buy American copper at 7.15 cents, c.i.f. Liverpool, Havre or Hamburg, for which domestic consumers have to pay 9 cents, delivered Connecticut point.

Lead—After having marked down its contract basing price by $1 a ton late last week, the leading interest on Monday announced $1 advance, thus leaving the market unchanged.

Zinc—Quiet and unchanged.



Broaching Plymouth Engine Block

Here is the first photo of the horizontal, hydraulic surface broaching machine which has been in use at Plymouth for broaching the main bearing block in the six-cylinder engine block. The machine is built right into the conveyor line. Operation of the machine is practically automatic—the work is clamped in the fixture by direct acting air cylinders, and the broach slide is started by opening the hydraulic main valve. Production about 110 blocks per hour, speed of broach is 22 ft. per min. cutting.

The machine was built by Cincinnati Milling Machine and Cincinnati Grinders, Inc.

N. Y. Show Committee Meets; Final Announcement Sept. 15

A meeting of the executive committee of the Show Committee of the Automobile Merchants' Association was held Aug. 29. It is understood that no formal announcements about the New York Automobile Show will be made until about Sept. 15. It is believed that at that time all the details about the management shall have received their final form.

Ex-Cell-O Adopts New ASA Bushing Standard

The new American Standards Association bushing standard has been adopted by the Ex-Cell-O Aircraft and Tool Corp., effective Sept. 1 when shipments according to the new specifications commence.

In accordance with a decision made by the bushing manufacturers, the old standard bushings will be carried in stock for a reasonable length of time which will enable manufacturers to obtain replacements of this standard.

A new bushing folder covering the new A.S.A. standard is now available.

Kelly Joins Cleveland Agency

Philip J. Kelly, formerly advertising director of the B. F. Goodrich Company, will become associated with Meldrum & Fewsmith, Cleveland advertising agency, it is announced by Barclay Meldrum, president. Mr. Kelly's resignation from Goodrich becomes effective Sept. 1.

New Ford Steel Plants Will Take Care of Daily Production of 3,000 Cars

Henry Ford is now in full swing on the final move that will give his industry an absolutely independent supply of the 36 different kinds of special steels which it requires.

The move involves the building of two huge new steel mills, installation of a vast amount of special machinery and sufficient additions to his present power equipment to drive the new mill.

The construction will require eight months to complete and will cost between $12,000,000 and $13,000,000.

When the new mills are ready, Ford can produce 3,000 cars a day without buying a pound of steel in the market. He will have attained a position, so far as steel supply is concerned, achieved by no other private manufacturer in the world. Ford's move will tend further to make the Detroit area a great steel producing district by the addition of 1500 tons of finished steel a day. Two huge buildings are being erected, one of which will house a continuous cold strip mill capable of turning out sheets up to 84 inches wide and the other a continuous hot strip mill, rolling 48 in. strips.

AMA Protests Preferential Treatment Of Low Priced Cars In Cuban Treaty

A protest against the preferential treatment given lower-priced automobiles in the new reciprocal trade treaty with Cuba, the first to be negotiated under the tariff bargaining powers granted the President by the last Congress, has been filed informally with the State Department by the Automobile Manufacturers Association (formerly the National Automobile Chamber of Commerce).

Formerly all passenger car imports into the island republic were subject to a tariff of 24 per cent on the list price. Under the new treaty schedules, this flat rate is reduced to 21 per cent for cars listing over $1,500, to 16.5 per cent for cars listing from $750 to $1,500, and to 12 per cent on cars under $750. Back of this discrimination presumably lies the theory that the buyers of the higher priced units are able to pay the higher duties. While this theory perhaps may be a good one from the standpoint of Cuban revenue, American manufacturers question its soundness from a commercial standpoint and consequently are contending for uniform reductions applying to all price classes.

Cuban tariffs on American trucks have been reduced by the treaty from 24 to 22.5 per cent for those with wood bodies, and from 16 to 14 per cent on steel trucks. Duties on tractors and airplanes are unchanged at 4 and 8 per cent respectively.

The Cuban agreement does not set up a precedent for future pacts since, according to Alfred Reeves, vice-president and general manager of the A.M.A., it was negotiated by the Treaty Division of the State Department prior to the creation of the new Tariff Agreement Sections. These sections will handle all future agreements, and the industry has been invited to present a formal expression of its views.

These views apparently will take the form of briefs drawn up by the A.M.A. setting forth means by which exports of American automobiles may be stimulated. The briefs will be presented at hearings to be held on future agreements. Groundwork for these briefs is now being laid by the export departments of the various automobile companies which have requested their foreign representatives to fill out questionnaires calling for detailed information regarding tariff barriers and other impediments to overseas trade. The evidence to be submitted, however, will be confined to suggestions as to how automobile exports may be aided and will not include suggestions as to what domestic tariffs should be compensatingly reduced.

Although the industry is protesting against the preference granted the lower-priced cars, the announcement of the Cuban agreement was the occasion for a wire of congratulations to Secretary of State Hull from Robert C. Graham, chairman of the A.M.A. export committee.

The long downward trend in automotive exports to Cuba was ended in the first half of this year when almost as many cars were shipped to that country as in all of 1933, while the value of such exports in the first half was in excess of last year's total. Truck exports to Cuba in the first half exceeded shipments in all of 1933 by a substantial margin both in number and value.

V-12 Diesel to Power U. P. Streamlined Train

The new six-car streamlined train being built for the Union Pacific will be powered with a 900 hp. V-type Winton Diesel engine. The engine is 20 ft. long and weighs 18,000 lbs. The new train, which will have sleeping accommodations, will run between Chicago and the Pacific coast.

Pierce-Arrow

Pierce-Arrow's net loss for the first half of the current year, as reported by the company, increased considerably over that for the corresponding period of 1933. The net loss for the six months ending June 30 is $681,088 as compared with $254,735 for last year.

U. S. Passenger Car Exports to Cuba

(Declared Invoice Value of Cars Exported)

1934	$850 and Less No.	$850 and Less Value	$851-$1,200 No.	$851-$1,200 Value	$1,201-$2,000 No.	$1,201-$2,000 Value	$2,001 and Over No.	$2,001 and Over Value	Total Cars and Chassis No.	Total Cars and Chassis Value
(Six months)	401	$214,580	26	$26,325	10	$15,670	2	$4,832	439	$261,407
1933	424	202,409	18	17,558	17	26,624	4	9,707	463	256,298
1932	498	250,641	52	47,704	16	23,550	15	51,948	581	373,843
1931	692	346,865	80	78,277	19	28,014	33	94,974	824	548,130

	Up to $1,000 No.	Up to $1,000 Value	$1,000-$2,000 No.	$1,000-$2,000 Value	$2,000 and Over No.	$2,000 and Over Value	Total Passenger Cars No.	Total Passenger Cars Value
1930	2,824	$1,377,377	435	$525,464	119	$322,300	3,378	$2,225,141
1929	5,032	2,508,800	802	999,088	179	479,282	6,013	3,987,270
1928	4,872	2,396,592	922	1,154,793	190	499,020	5,984	4,050,405

U. S. Exports of Trucks, Busses and Chassis to Cuba

	Number	Value			
1934 (Six Months)	691	$359,322	1930	2,333	1,277,111
1933	436	262,616	1929	2,590	1,616,687
1932	409	203,081	1928	1,407	1,530,751
1931	829	432,162			

T. E. Chancellor
Whose appointment as western sales manager for Nash has been announced by C. H. Bliss, vice-president and sales director of the company

July Registrations Exceed June Totals

Reports from 40 States Show Chevrolet Leading Ford; 24% Gain Over '33

New car registrations for July amounted to 230,411, as against 185,660 a year ago and 223,642 during June, 1934, according to estimates based on returns from 40 states. On this basis July registrations show an increase over a year ago of approximately 24 per cent and over June of this year of about 3 per cent. While April is the usual peak month of the year, the seasonal trend this year has been reversed, and the present indications are that July will be the peak month for 1934. This was the case last year and was the first time for the past ten years.

Based on these partial returns Chevrolet is in first place by a comfortable margin, showing returns of 67,861, as compared with 59,397 a year ago, an increase of 14 per cent; Ford is second with 63,520, as compared with 38,348 during last July, a gain of approximately 66 per cent; Plymouth is third with 38,694, as against 31,891 during July, 1933, showing an increase of 21 per cent.

Returns from 40 states indicate that new truck registrations amounted to 36,000, as compared with 30,642 during July, 1934, a gain of approximately 19 per cent.

Spicer Manufacturing Corp.

The Spicer Manufacturing Corp. reports a net profit for the first six months of this year of $297,216 against a net loss of $92,159 The first half profit is computed after deductions from earnings for ordinary taxes and depreciation charges, but before Federal income taxes and excess profit taxes.

Business in Brief

Written by the Guaranty Trust Co., New York, exclusively for Automotive Industries

The recession in industrial activity continued at a reduced pace last week, while some branches of trade reported an improvement in business. Although unseasonably warm weather over large sections of the country has retarded autumn buying, there is a tendency in some quarters to anticipate a better season than last year.

Freight Volume Slumps

Railway freight volume continued to decline during the week ended Aug. 18. Loadings during that period totaled 600,564 cars, showing a decrease of 1966 cars, or 0.3 per cent, from the figure for the preceding week and a decrease of 42,842 cars, or 6.7 per cent, from that for the corresponding period last year. As compared with the total two years ago, the current figure shows an increase of 82,124 cars, or 15.8 per cent.

Chain Store Sales

The trend of chain store trade last month was irregular, with substantial gains reported by grocery and five-and-ten-cent chains and recessions in apparel, shoes and drugs. Total sales of 18 reporting chains decreased during the month by less than the usual seasonal amount.

Construction Fair

Construction contract awards in July continued above the corresponding monthly total last year, according to the F. W. Dodge Corporation. The July value of $119,698,800 for 37 States compares with $127,116,200 in June and $82,554,400 a year ago. For the first seven months of the year, the total is $973,861,500, as against $514,667,800 for the corresponding period last year.

Current Consumption Up

Production of electricity by the electric light and power industry of the United States for the week ended Aug. 18 was 1.5 per cent larger than that in the similar period a year ago. The gain over last year's figure was slightly smaller than that reported a week earlier but was larger than those shown two and three weeks earlier.

Factory Employment Off

Factory employment in the manufacturing industries declined by 3 per cent and factory payrolls by 6.8 per cent between June and July, according to the Department of Labor. The declines were partly seasonal and were attributed to inventory-taking, repairs, vacations, and the closing-down of plants over an extended July 4 holiday period. Other contributing factors were strikes, drought, and extreme heat.

Crude Output Gains

Average daily crude oil production for the week ended August 18 amounted to 2,518,700 barrels, showing an increase of 12,850 barrels over the output for the preceding week and an excess of 69,400 barrels over the Federal allowable figure, which became effective on Aug. 1.

Fisher's Index

Professor Fisher's index of wholesale commodity prices advanced to 78.5 last week, as against 77.8 a week and two weeks earlier. The current figure marks the first substantial rise since June and a new high figure for the year to date.

Federal Reserve Statement

Federal Reserve bank credit outstanding declined $11,000,000 during the week ended Aug. 22. The monetary gold stock increased $4,000,000, Treasury and national bank currency $15,000,000, money in circulation $4,000,000 and member bank reserve balances $8,000,000.

Unemployment Gains

The vexatious problem of unemployment again showed an upward trend in July when the number of workless increased 8.5 per cent over June, according to an estimate by the National Industrial Conference Board. The board placed the estimated total of unemployed persons at 8,609,000, considerably under the figure recently quoted by William Green, A. F. of L. president, and at the same time higher than the estimated total furnished by the Chamber of Commerce of the United States in the August *Washington Review.*

However, the July figure, though greater by 675,000 than the previous month, was approximately 4,594,000 less than the same month one year ago. This is a shrinkage of 34.8 per cent, the N.I.C.B. states, from March, 1933, when unemployment reached its zenith. In this estimate the workers employed through PWA are counted as employed, but emergency workers employed under Government auspices, usually on part time jobs in lieu of direct unemployment relief, are calculated as unemployed.

Iron & Steel Institute Publishes New "Extras"

Extra charges on steel products listed in the new book of "Extras" just published by the American Iron and Steel Institute will become effective Sept. 1 on sales of products for shipment on or after Oct. 1, 1934, according to an announcement by the American Iron and Steel Institute.

The revised book, which supplants the "Extras" book published last December, contains 78 sections, 75 of which cover different classifications of steel products. New sections have been added covering axle steel bars, ferromanganese, and wrought iron plates and sheets; also there are sections covering Manufacturers' Standards for Chemical Composition; Manufacturers' Standard Permissible Variations from Ordered Chemical Limits, and Manufacturers' Standard Methods of Sampling for Rolled and Forged Products.

Budd Co. Employing 1000 Men in Tool, Die Shops

In preparation for next season's automobile body production, more than 1000 men, as compared with a recent monthly average of 200, are engaged in making tools and dies in the shops of the Edward G. Budd Manufacturing Co., according to a report from the company. The men are working in three shifts on a program which calls for the manufacture of tools, dies and other equipment that will exceed $1,000,000 in valuation.

Graham Addresses Alumni

Robert C. Graham, vice-president of Graham-Paige, was the principal speaker at the international dinner of the alumni of Assumption College last Thursday. The dinner was held at the college at Sandwich. All former students of the institution were invited to attend the dinner to hear Mr. Graham, whose topic was "Today's Opportunities for the College Man."

Dominion Motors, Ltd. Considers Liquidation

Stockholders Asked to Approve Move; Cost of Business Prohibitive

Dominion Motors, Limited, of Canada, is considering the sale of its business, either in whole or part. Authority for such a step is being asked by the directors in a recent letter sent out to shareholders. A meeting has been called for Sept. 5 at Leaside, Ont., at which a decision is expected. J. A. Brand, president of the company, states that production of automobiles, which stopped last year, cannot be resumed without the company being allied to some strong United States concern because the expense of designing and building constantly changing models would be prohibitive for an independent Canadian company.

Such a connection by Dominion Motors was lost when Durant, and later the Continental Motor companies suspended operations. The balance sheet on March 31 showed a deficit of $770,625. Among liabilities are included a bank loan of $718,964, accounts payable and accrued expenses in excess of $20,000, and total current liabilities of $718,964. Net current assets are reported to be $71,740, after deducting a reserve for losses in liquidation of $90,779. Fixed assets, less reserves of $1,495,611, total $1,496,231, and total assets are placed at $2,823,216. Dominion Motors has already sold four of its buildings at Leaside to the Standard Underground Cable Company of Canada, Limited, for $190,000. The sale was approved by the shareholders at a recent meeting. Officials of the company state that several leases have been signed by manufacturing concerns for floor space in the other buildings owned by the company at Leaside.

New Marketing Method For Dayton Rubber Co.

Dayton fan belts and radiator hose will be marketed on a direct-to-jobber basis in the future according to an announcement made by John A. MacMillan, president and general manager of the Dayton Rubber Manufacturing Co.

New Radiator Plant

Canadian Radiator Manufacturing Co., Limited, has established a plant at Leaside, Ont., to manufacture automobile radiators. The company is affiliated with the Auto Radiator Manufacturing Company, of Chicago, Ill.

"Now is the Winter of Our Discontent"

An anonymous correspondent writes us taking exception to the caption on the Mackinac Island picture in the July 21 issue which read: "A Kingdom For a Horse! . . . Shades of Richard the Lion Hearted!" We are informed that Richard I of England should have been invoked, rather than Richard III. Our reader tells us "there's a horse on you," the well known "horse laugh" we imagine.

But—our reference was to Shakespeare's "Richard III." In Act V, Scene III (Bosworth Field) will be found this speech:

"A horse! a horse! my kingdom for a horse!"

(Exit)

Industry Increases Tin Consumption 2,500 Tons

The automotive industry's consumption of tin during the first half of the current year was approximately 2500 tons more than the quantity used during the corresponding period of 1933, according to a report released this week by the International Tin Research Development Council.

Exports and Imports for the Automotive Industry for July and Seven Months Ended July, 1934-1933

	July				Seven Months Ended July			
	Number	Value	Number	Value	Number	Value	Number	Value
	1934		1933		1934		1933	
Automobiles, parts and accessories	...	$18,390,653	....	$7,495,645	....	$125,108,333	....	$49,055,014
Motor trucks, buses and chassis (total)	6,338	3,180,641	3,582	1,537,429	56,175	26,354,484	19,907	8,798,019
Under one ton	874	294,601	341	99,361	5,765	1,840,426	2,211	638,699
One and up to 1½ tons	4,703	2,162,953	2,745	965,553	43,309	17,943,621	15,182	5,638,123
Over 1½ tons to 2½ tons	647	548,286	378	329,095	5,798	4,630,775	1,907	1,508,904
Over 2½ tons	94	159,991	72	132,650	1,089	1,803,060	444	916,586
PASSENGER CARS								
Passenger cars and chassis	17,621	9,940,078	5,546	2,695,195	96,856	53,390,795	39,166	18,947,952
Low price range $850 inclusive	15,867	8,100,842	5,131	2,244,755	88,883	44,569,006	36,390	15,793,555
Medium price range over $850 to $1,200	1,323	1,277,034	236	226 982	5,358	5,179 073	1,618	1,561,643
$1,200 to 2,000	242	351,157	83	126,337	1,452	2,231,803	678	1,016,163
Over $2,000	61	163,187	28	73,169	431	1,135,493	178	460,052
PARTS, etc.								
Parts except engines and tires	....	....	....	....	....	....	....	....
Automobile unit assemblies	....	2,658.808	....	1,641,618	....	26,564,768	....	11.378.221
Automobile parts for replacement (n.e.s.)	....	1,775.829	....	1,052,305	....	12,696,876	....	6,367,306
Automobile accessories (n.e.s.)	....	174.801	....	120,720	....	1,541.164	....	768.770
*Automobile service appliances	....	273,014	....	87,182	....	1,464,007	....	511,990
Airplanes, seaplanes and other aircraft	42	1,020,442	35	636,388	188	3,519,255	234	3,332,639
Parts of airplanes, except engines and tires	....	471,162	....	346,245	....	1,851,467	....	1,216,717
INTERNAL COMBUSTION ENGINES								
Stationary and Portable:								
Diesel and semi-Diesel	12	71,663	4	18,724	66	188,005	15	58,303
Other stationary and portable:								
Not over 10 hp.	647	46,678	300	18,906	3,490	220,241	1,487	102,581
Over 10 hp.	49	37,232	117	37,111	580	384,859	422	176,126
Automobile engines for:								
Motor trucks and buses	424	64,531	316	25,081	3,149	395,296	1,314	164,720
Passenger cars	1,326	94,904	1,768	109.773	18,694	1,156,622	13,944	873,718
Aircraft	34	119,775	417	86,265	490	2,203,417	1,133	693,310
Accessories and parts (carburetors)	....	....	....	86,787	....	....	....	561,243
IMPORTS								
Automobile and chassis (dutiable)	52	10,050	31	6,265	278	99,712	257	121,595

* This class consists of three items: Automobile tire service equipment; pumps for gasoline & oil and "other automobile service appliances."

The Horizons of

THE outstanding difference between Anglo-Saxon and Roman jurisprudence is the emphasis of the former upon principles and of the latter upon the authority of the ruler. The sanction for Roman law was found in the will of the emperor. The sanction for the common law was found in the precedents which gave concrete application to the principles of justice. The doctrine of *stare decisiis*, i.e. that the law flows from a series of previous judicial decisions, is fundamental in the common law. Thus practice and general community acceptance establish the rule. The state through its judicial machinery is merely on hand to enforce it. This makes the law conservative, to be sure. Yet it guarantees general compliance and at the same time provides a certain elasticity as old principles are applied to new cases.

Not the least important virtue of the common law, one highly esteemed by students of jurisprudence, is its certainty. Rights and transgressions have been defined and pains and penalties imposed. Whatever faults may be found in the intrinsic qualities of the law it is known to all parties in advance. The common law abhors the rule created after the event which disturbs contracts and imposes penalties not applicable before the event took place.

A Legal Cornucopia

These observations were very much in order before the American Revolution and the abuses to which they were directed were unquestionably responsible for the war which separated this country from England. They have again become pertinent. The American Bar Association reports that the government has created more law during the last sixteen months than it did in all the previous years of its existence. The last session of Congress passed more than 600 laws. The new deal has given us no less than 49 distinct alphabetical agencies. Most of these have administrative powers so broad that they can be defended only on grounds of an emergency. The codes of which there are more than 500 in operation constitute a covenant with the President under which business virtually waives its constitutional rights.

Anglo-Saxon and Roman Law

Precedent which formerly guided the administration of the law and gave the business man reasonably clear highways to follow has been violated without apologies. In fact the more enthusiastic adherents of the New Deal reckon this repudiation of stare decisiis as one of its most meritorious virtues. During the past sixteen months this country has passed from a rule of law to a rule of will. It has traversed the space between Anglo-Saxon and Roman jurisprudence until today the past is without honor and the wishes of the White House, guided at times by considerations which defy discovery and definition, determine the conduct of business.

Executive Power and the Automobile Code

Concrete evidence abounds. Section 10 (b) of the National Recovery Act states that "The President may from time to time cancel or modify any order, approval, license, rule, or regulation issued under this title; and each agreement, code of fair competition, or license approved, prescribed, or issued under this title shall contain an express provision to that effect." Thus the law gives the President the right to alter without hearing, notice or consent of any other authority or party any provision of any code. He can eliminate the merit clause from the automobile code and substitute therefor the length of a worker's membership in an A. F. of L. union as the criterion of promotion or as qualification for a job. He can reduce the hours of work to 30 or raise them to 50 and establish any wage scale which the mood of the moment may suggest to him.

If it seems to some code members that the law has gone too far in granting power to the President it might be well for such spirits to read again the code agreements to which they assented. Here will be found a definite contract between the code member and the President giving the latter the right to "cancel or modify" any "rule or regulation." In other words the code is a covenant which implements the law and denies the signatory the right to invoke his constitutional guarantees. His only hope is to prove that he was drunk, an idiot, a minor, or under duress at the time he assented to the code.

Pants, Patriotism and Profits

These speculations are not gratuitous. Recently an astute gentleman named Sidney Hillman who is head of the Amalgamated Clothing Workers of America and at the same time member of a quasi-judicial body known as the National Labor Relations Board obtained the ear of the President and revealed a scandalous condition in the clothing industry. It was largely a matter of pants. It seems that manufacturers of woolen and part woolen pants were operating under the terms

Business

by Joseph Stagg Lawrence

of an agreement with Amalgamated which called for a 35-hour week and wages satisfactory to Mr. Hillman's labor organization. Cotton garment manufacturers operated under a code which permitted a 40-hour week and wages lower than those set by the Amalgamated for woolen manufacturers. Many of the cotton garment manufacturers turned out pants which had a small proportion of cotton in them but were mostly wool, thus permitting competition with the woolen pants manufacturers while paying the lower wages of the cotton garment code.

It is one of those situations which cried aloud for repair. Mr. Sidney Hillman shed eloquent tears upon the receptive bosom of the President with the result that an order was issued under the authority of Section 10 (b) which reduced hours in the cotton garment industry from 40 to 36 without changing wages. It is a long leap from the quaint old democratic notion that citizens vitally affected by a law, particularly if they pay taxes, should be consulted. Equally alien is it to the common law principle that rules enforced by the state should be known in advance, should be based upon accepted practice and should not emerge from the law making chambers like a wind out of the west.

Helping the Red Ink Industry

The ruling of course will affect more than just the pants makers. The consus of 1931 shows 330,000 workers in the cotton textile industry. An increase of 11 per cent in wage rates means a rise of approximately $24,000,000 in costs. If all of this is added to the price of the finished product it will rise 3 per cent. On the other hand, if consumer resistance is excessively sensitive—which seems to be its state today—the increase may be deducted from profits, if any, or added to losses. According to the latest available returns of the Commissioner of Internal Revenue there are roughly 14,000 concerns in the cotton textile industry. In 1930, a year which by comparison with 1934 must be considered good, 8750 of these companies were in the red to the extent of $370,000,000, while the remaining companies showed a profit of $106,000,000. Clearly the order of the White House will raise the number of those companies in the red and diminish those in the black. The President's action is applauded by labor leaders and Sidney Hillman is accounted a very clever fellow.

The Competence of Government Spokesmen

The action should also be noted in connection with another phenomenon of New Deal politics. During the past month five important but subordinate members of the government's executive branch have spoken in public on the subject of profits. Kennedy, chairman of the Securities Exchange Commissions; Tugwell, under secretary of agriculture; Dickinson, assistant secretary of commerce; Roper, secretary of commerce, and Donald Richberg have united to assure business that the administration has no intention of proscribing profits, that their importance as the motivating force of all enterprise was fully appreciated by the government. Although the President's cotton garment order was issued after Kennedy, Tugwell and Dickinson and before Roper and Richberg had expounded the New Deal's reverence for profits there was a distinctly indignant note in the speeches of Roper and Richberg.

Before alleged spokesmen of the government rise on platforms to make promises it might be well to accompany their appearance with some authentic certificate defining the precise competence of the speakers to make any assurances whatsoever regarding the policies of the government. The President himself has had numerous opportunities to confirm the right to profit a task which he has apparently delegated to subordinates. While such comfort to the business man cannot be found in his utterances his other expressions and deeds are eloquent.

Action Versus Words

His speeches at Bonneville, Grand Coulee and Glacial National Park again rang the changes on the hypothesis that all business is a racket. He is in favor of "honest" business just as Tugwell is in favor of "fair" profits. In addition to these expressions and the profit significance of the cotton textile order there are two other recent actions of the Chief Executive which merit at least the same attention as the apostrophes of his subordinates to profits. The first is his signature of the Railway Pension Act although Federal Coordinator Eastman protested that the railroads could not bear the burden. The second is another executive order permitting all bidders on government contracts to undercut code prices as much as 15 per cent. Aside from the uncertainty attending the exercise of unprecedented executive power there seems to be an inconsistency between the warm assurances of Messrs. Kennedy, Tugwell, Dickinson, Roper and Richberg and the action of the government for which, presumably, they speak.

First Half Export Values More Than Double Full Year Totals of '33, '32

Foreign sales of American-made passenger cars, buses, trucks and miscellaneous products during the first six months of this year have far outdistanced the values recorded for the entire 12 months period of 1933 and 1932, which were $93,968,383 and $82,185,100 respectively. This year's value at the end of the first half was $109,902,707.

The first half total for the current year represents an increase of 155 per cent over the corresponding period of 1933, which was $43,021,205, and 124 per cent over the same six months of 1932, which was $48,924,274. A comparison of the first half totals, the department points out, with those of last year shows that the improved totals were registered in each of the price classes and capacity groups of both passenger cars and trucks as well as in the case of every item under the miscellaneous heading, while each of the 15 leading car and eight chief truck markets showed substantial gains.

Exports of passenger cars numbered 78,636 units, valued at $43,225,215, during the period under review, as against 33,386 units, valued at $16,160,170, during the opening half-year of 1933. Motor trucks and buses numbered 49,703 units, valued at $23,110,727, as against 16,219 units, valued at $7,186,177, in the first six months of last year.

The Union of South Africa, Belgium, Sweden, Australia and Japan were the chief purchasers of American passenger cars during the 1934 period, while Japan, Belgium, British India, Spain, and the Union of South Africa occupied the same relative positions with reference to trucks and buses. Each of the eight principal truck markets, as well as the 15 chief countries of destination for passenger cars, with the exception of Argentina, Philippine Islands and Switzerland, accounted for purchases which were more than double the values reported during the first half of 1933.

The average export valuation for passenger cars and trucks during the January-June period of 1934 was $549 and $465, as compared with $484 and $443, respectively, in the corresponding months of 1933. Note should be taken of the fact that a certain percentage of the car and truck shipments to Belgium and Denmark are intended for reexport.

Shipments of various automotive items included under the miscellaneous heading were improved in each instance, the total for this group amounting to $43,566,765 against $19,658,073 for the opening half of last year.

According to the Department of Commerce, imports of American passenger cars into Argentina in the first half of this year totaled 5383 units compared with 2941 during the same six months of last year. Truck imports number 3450 this year against 915 units for the first six months of 1933. Low priced cars sold during the first half represented approximately 90 per cent of the total, while the low priced trucks accounted for about 85 per cent of total truck sales. Department of Commerce attaches believe that the exchange situation in the Argentine is still the most important factor in bringing about this increase in the sale of American automotive products.

Trade Commissioner Lawson, reporting from Johannesburg, states that a total of 3100 new passenger cars were registered in South Africa during the first six months of this year as compared with 1750 for the same period of last year. June was the peak month with a total of 654 registrations as against only 207 in June of 1933.

Graham Custom Eight Wins Mexican Race

A Graham custom eight with supercharger won the Mexico City to Puebla mountain race this year, covering the 135 kilometer course with its 57 dangerous curves in one hour, five minutes, 47 1/5 seconds, thus breaking the previous record. The Graham was awarded the championship prize offered by the Mexican National Automobile Association for the annual event.

FWD First-Half Report Shows Big Sales Gain

Sales of F W D trucks increased 120 per cent in the first half of 1934 compared with the like period of 1933, according to a statement issued by the Four Wheel Drive Auto Co., Clintonville, Wis. Sales to highway departments, states and counties continued to show the greatest volume of increase. Sales of the road maintenance unit alone are more than double sales of this unit for all of last year. Increased sales in Canada, South America, Europe, Asia Minor and islands in the Pacific were also announced. Trucks for oil producing as well as oil distribution, and from commercial truck haulers also show substantial gains. Sales of tools to public utilities increased 137 per cent over the same period of 1933.

American National Acquires Alma Co.

American National Industries, Inc., of Detroit, has acquired a controlling interest in the stock of the Alma Manufacturing Company, according to an announcement by William W. Schenck, president of American National. This is the first of a proposed series of acquisitions by the Detroit holding company in Michigan, Ohio, Illinois and New York.

The Alma company recently retooled its Alma, Mich., plant for increased production of its four-wheel-drive truck units. It is headed by Frank W. Ruggles, veteran truck manufacturer and former president of Republic Truck Company.

Alma Buys Dual Duty

Alma Manufacturing Company, division of American National Industries, Inc., has purchased the manufacturing, sales and service of the Dual Duty Company at St. Louis, according to an announcement from William W. Schenck, president of American National, Detroit holding company.

Dual Duty Company are makers of six wheel truck hauling units and highway trailers.

CALENDAR OF COMING EVENTS

SHOWS

American Transit Assoc., Cleveland, Ohio ..... Sept. 22-27
Cleveland (Automotive Service Industries) ..... Nov. 19-23
New York Automobile Show.... Jan. 5-12
Chicago Automobile Show.... Jan. 26-Feb. 2

MEETINGS

American Chemical Society, Cleveland, Ohio ..... Sept. 10-14
American Welding Society, New York City ..... Oct. 1-5

ANNUAL MEETINGS

Natl. Assoc. of Motor Bus Operators, Cleveland ..... Sept. 21-22
Natl. Safety Council, Cleveland, O.. Oct. 1-5
Institute of Traffic Engineers, Cleveland ..... Oct. 2-3
S.A.E. Annual Production Meeting Detroit ..... Oct. 10-11

CONVENTIONS

American Society for Metals, New York City ..... Oct. 1-5
American Transit Assoc., Cleveland Sept. 24-27
International Foundry Congress, Philadelphia ..... Oct. 22-26
American Foundrymen's Assoc., Philadelphia ..... Oct. 22-26
National Foreign Trade Council, New York ..... Oct. 31-Nov. 2

EXPOSITION

Natl. Exposition of Power & Mechanical Engineering (Biennial) New York, N. Y. ..... Dec. 3-8

FOREIGN SHOWS

Paris Automobile Salon..... Oct. 4-14
London International Automobile Show Oct. 11-20

JUST AMONG OURSELVES

The 1935 New York Show

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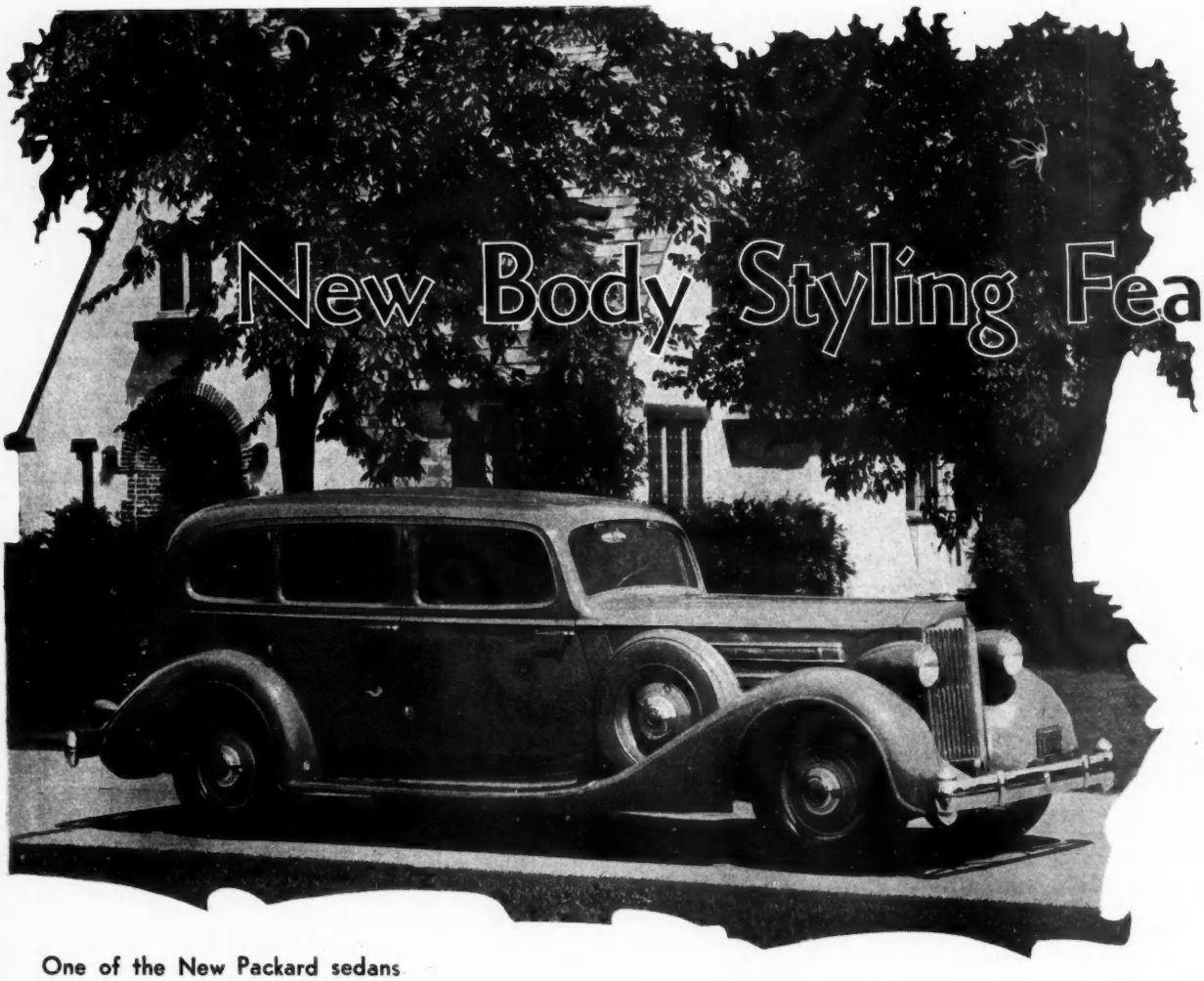
New Body Styling Features P



One of the New Packard sedans

MECHANICALLY the 1934 Packard models, offered as previously in eight wheelbases, may not differ radically from their predecessors. In appearance, however, they have been thoroughly modernized. Bodies for all three lines, Packard Eight, Super Eight and Twelve are completely new from the more sloping windshield to the sloping rear panels.

Radiator shells continue the characteristic Packard design, again modernized with an increased slope to the chrome-plated shutter grilles, and the characteristic angular recessing of the lacquered shell is emphasized by continuing the line back past the hood into the body side panels, tapering out at the rear.

Exterior appearance has been cleaned up materially. Fenders are deeper, the front tubular frame member has been eliminated, with front radiator splashers now integral with front fenders. Spare tires, except for de luxe (fender well) equipment, are concealed in a compartment in the sloping rear panel.

Body side panels are continued down to the running board, eliminating separate splashers. Provision has been made for installation of wheel covers at rear fenders. Wider doors following the sloping front pillar line are now hung at the center pillar with barrel type hinges. Different louvre designs distinguish the three series from each other.

Front and rear fenders have a Vee center line which is quite pronounced at the rear, but does not interfere with fender well tire mounting at the front. Headlamps have longer shells, lacquered, with chrome rims.

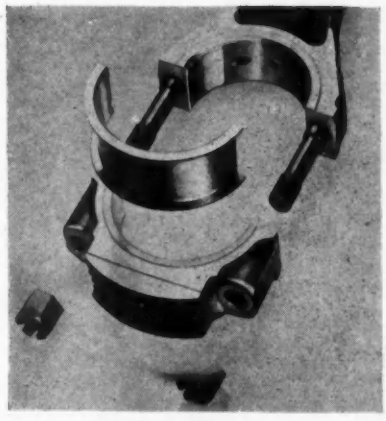
Comfort has been a major objective in the design of the 1935 bodies. Ventilation has been markedly improved, changes including large ventilating windows at the rear, fixed windshield, elimination of side cowl ventilators, etc., and reduction of wind noise to a minimum. The larger windshield makes for better vision of course. Body room has been materially increased, with dashes moved 1⅛ in. farther forward (as a result of shift in engine location); rear seats have been widened by recessing sidearm rests; hand-brake control has been removed to the left of the driver and made of the pull type for more front compartment room, etc.

Independent springing has not been provided, but riding qualities certainly seem to leave little room for major criticism. Engines have been moved farther forward and front axles pulled back about 2 in. toward this end. Further, front spring rates have been made about 25 lb. softer, giving a better balance of fore and aft spring rates and better rear seat ride. Ride control shock absorber adjustment has been retained however.

Riding comfort has also been improved in the direction of eliminating "jolts." This achievement is

by A. F. Denham
Detroit Editor, Automotive Industries

Packard 1935 Models



Big end rod bearing disassembled to show replaceable copper-lead liners

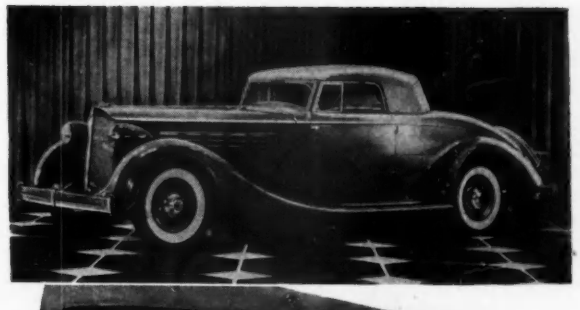
Softer front springs and new weight distribution improve riding qualities—More wood used in bodies—Power increased—Copper-lead rod bearings adopted

credited largely to first, a stiffer frame and more rigid body mounting, and second, a material increase in the proportion of wood used in the body. This probably represents the first major departure away from increasing all steel construction, and in the case of Packard at least seems to have been rather effective in adding to the normal shock-absorbing qualities of the body structure.

As far as mechanical changes are concerned, the majority have been made for the purpose of increasing durability, although performance has also been stepped up. In this latter respect, aluminum cylinder heads, standard now on all models, have permitted an increase in compression ratio and a 10-hp. increase on the Packard Eight (now 130 hp.) and 5 hp. on the Super Eight (now 150 hp.). On the Twelve, in addition the stroke has been lengthened ¼ in., effective in increasing the output by 15 to 175 hp.

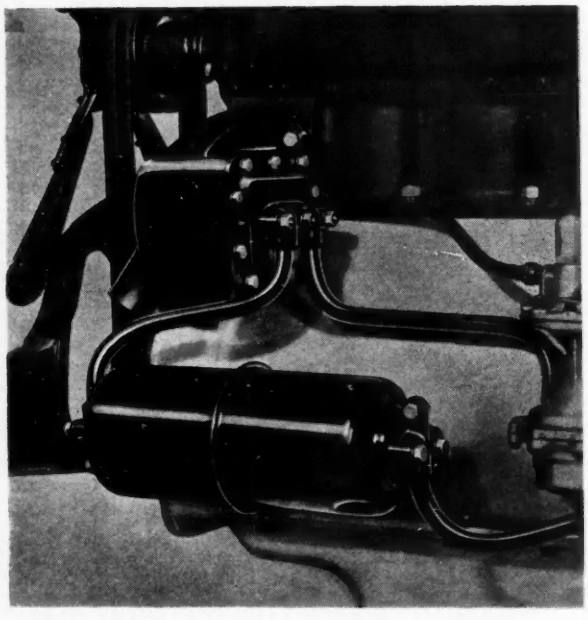
Copper-lead connecting rod liners are adopted as standard on all three Packard engines for 1935. These are credited in a large part with the ability of the most recent Packard models to stand rather phenomenal distances of wide-open throttle test track running without trouble, equipped with standard sedan bodies and the standard rear axle ratio.

Super Eight coupe roadster is shown at the right



Below is illustrated the interior of one of the new Packards showing new upholstery and trim, recessed arm rests, concealed curtains and ventilating windows

Front interior showing instrument panel, larger fixed windshield and new hand brake location



Installation of full flow oil filters and coolers on the Packard Eight

These new bearings have brought with them, as an insurance measure, a material increase in the oil flow through the engine, bigger oil lines being used for one thing. This, of course, is credited with the additional advantage of permitting more rapid beginning of oil circulation in cold weather and during warm up.

Other changes have been made in the lubricating system. Oil coolers have been relocated and made of the U-flow type. The Twelve has a larger size Cuno full-flow filter with automatic cleaning, operating on changes in oil pressure, through a piston operated ratchet.

The 12-cylinder engine incidentally gives the impression of decidedly greater smoothness. Largely responsible is the softer engine mounting, which is now of the same general type as used on the eights.

On the eights there is an improved automatic choke of Stromberg manufacture, having only the thermostatic control on the exhaust manifold. The rest of the mechanism is mounted on the carburetor.

Exhaust valves are of a new high chrome content alloy produced by Detroit Motor Valve Company, by an extruding process claimed to decrease chance of head warpage, etc.

Bendix power-operation of the clutch has been added on the Twelve for lighter pedal pressure. It has a special hook-up with reaction type of control similar to that used on the Packard vacuum brake boosters. Added on this model also is a vacuum reserve tank serving both clutch and brake cylinders.

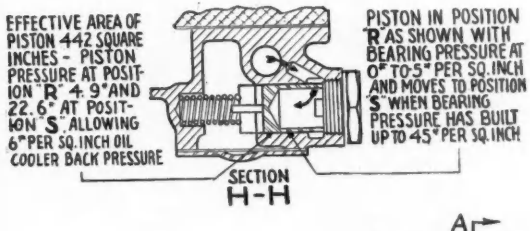
Frames, as have been mentioned, have been stiffened. X-member legs are carried forward to front horns, forming a box section with the side rail, and the upper torsion plate at the center of the X has been widened and is now anchored to the side members. Increased rigidity has made possible also the elimination of the front tubular member already mentioned.

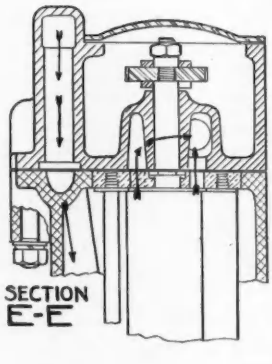
Brake selectors, standard on previous series, have been dropped and service adjustments provided in the vacuum controls to regulate amount of pedal pressure desired by the individual driver.

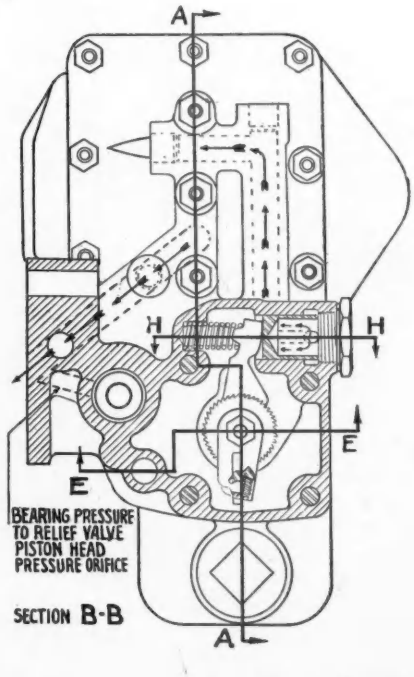
Generators are of a new type, force cooled, and have 30-ampere charging capacities. In the ignition system, single coils of improved design replace the former double coils. Batteries are now located under rear floorboards. A thermostatic flashing relay has been adopted to warn the driver in case of a short circuit in the chassis. It is of the standard Delco-Remy overload circuit breaker type.

Going back to the bodies, there have been added a total of eight additional body bolts. At the rear of the front door the center pillar now bolts to both a body outrigger and the frame side rail. Double bolts are provided at the front of the body. Furthermore, the sloping rear permits bolting the body to the rear frame horns, increasing rear end car rigidity.

The increased use of wood has been mentioned. In the five-passenger sedan body, for instance, there is now used some 250 lb. of wood. In spite of the increase in rigidity obtained, the Packard Eight is slightly lighter than last year by


EFFECTIVE AREA OF PISTON 442 SQUARE INCHES - PISTON PRESSURE AT POSITION "R" 49 AND 22.6 AT POSITION "S" ALLOWING 6 PER SQ. INCH OIL COOLER BACK PRESSURE
PISTON IN POSITION "R" AS SHOWN WITH BEARING PRESSURE AT 0 TO 5 PER SQ. INCH AND MOVES TO POSITION "S" WHEN BEARING PRESSURE HAS BUILT UP TO 45 PER SQ. INCH
SECTION H-H





careful elimination of non-contributory weight. Other models are about the same or slightly heavier.

There are a total of 36 bodies, exclusive of the custom models, when the various chasses are considered. The only major change in the line-up of bodies is in the dropping of the seven-passenger touring model from the standard line of bodies.

Body changes not previously mentioned include: wider rear doors; double door dovetails to prevent rattles; longer front bumpers for better fender protection; courtesy lights on Super Eight and Twelve for running board illumination, now mounted in read fenders; addition of ventilating windows to convertible models and roadsters; one-piece adjustable front seat on Packard Eight sedans; new interior trim with seat upholstery flat at the side and with narrow pleats in the center; new instrument board, sloped; and provided with indirect lighting with intensity of illumination controllable through a rheostat instead of a switch; instruments combined in simplified arrangement; control buttons located on offset panel below and slightly behind instrument panel; addition of indicator on instrument panel to show headlight beam position; adoption of an electric clock as standard equipment; provision of two universally adjustable visors; concealed curtains, with rear curtain of the pull-up type, etc.

Rear seats in the victoria and convertible sedan are adjustable so that they can be moved back when the top is raised, giving some eight inches of additional rear compartment room. When the top is lowered, the rear seat is moved forward to permit the top to be collapsed into a recess back of the rear seat.

Coupe type models are not provided with concealed rear tire mountings, but on the club sedan, which has a built-in trunk, a compartment is located below this trunk permitting the carrying of the spare tire and wheel, concealed, in a horizontal position.

Provision is made on all models for trunk racks, which however are at extra cost. Two combination stop-tail-and back-up lights are standard on all models. Dual air horns are now mounted under the hood.

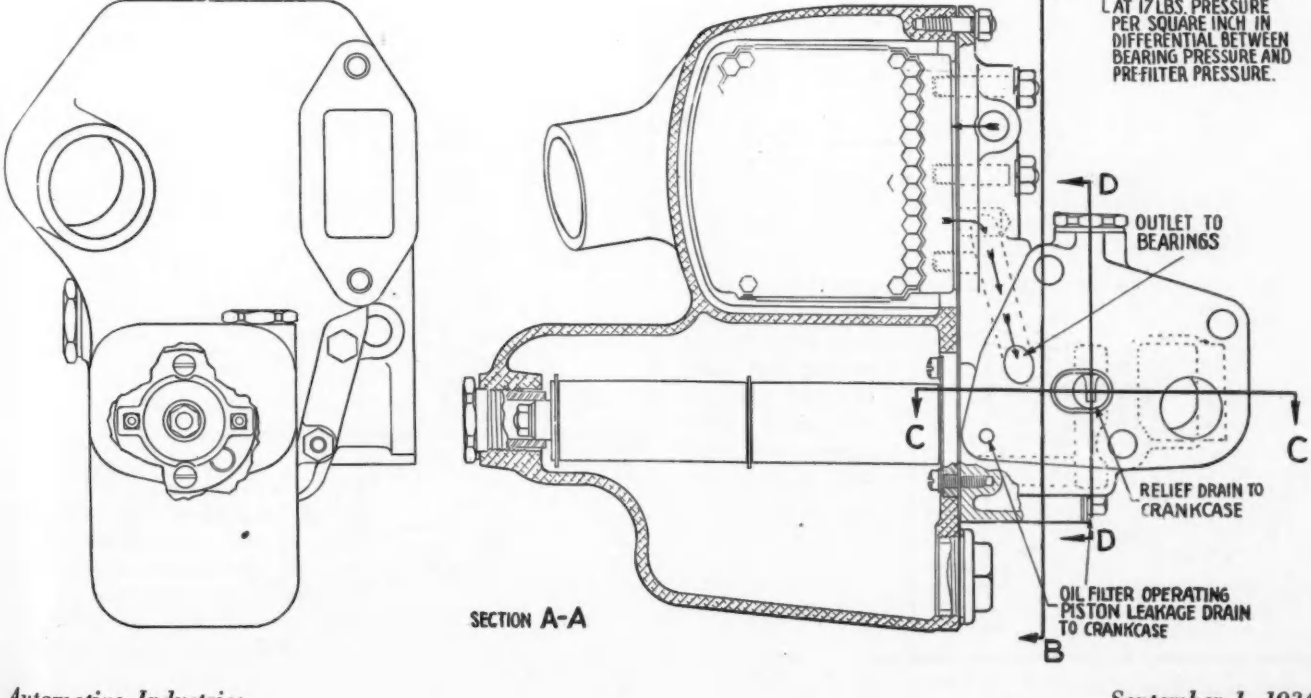
Bodies are estimated to be slightly "faster" than last year's offerings but no actual tests have been made eliminating other factors. The only change in rear axle ratio, incidentally was on the Packard Eight which now has a ratio of 4.69 to one as standard. This was an optional ratio last year (4.36 standard) but was specified on a large percentage of the cars.

The Super Eight and Twelve have 4.41 ratios and the writer clocked one of the new seven passenger twelves with a three passenger load around the Packard test track at an average speed of 95 mph.

Wheelbase of the New Packard Line

Car	Designation	Wheelbase
Packard 8	1200	127
	1201	134
	1202	139
Packard Supereight ..	1203	132
	1204	139
	1205	144
Packard Twelve	1207	139
	1208	144

On this and the opposite page are shown details of the oil cooler and filter assembly. Variations in the oil pressure provide automatic cleaning of the filter



Chrysler Applies

External Broaching to Diverse O

ONE of the busiest divisions of the Chrysler Corp.—the Newcastle parts plant—went to external broaching early this year on the production of certain parts for independent suspension front ends. Thus, another prominent name is added to the rapidly growing list of automotive plants that have adopted the new process.

This brief article describes only four of the applications in this plant but they are sufficiently varied in character to display the possibilities of surface broaching as a mass production process.

A combination of three broaches acting simultaneously to produce three different surfaces on the steering knuckle is shown in Fig. 1. Each broach is 39 in. long and has a cutting speed of 25 ft. per min. On the average each broach is good for 900 pieces between grinds and has an expected life of 12,000 pieces of work or about 13 regrinds. The work is handled by a Cincinnati vertical hydraulic broaching machine of the push type designed for Chrysler.

Another interesting job is the broaching of flats on two ends of the front wheel control arm pin shown in Fig. 2. The set-up requires the use of four broaches working simultaneously, handling four pins at a time, making a total of 16 broached surfaces per operation. Each broach is 36 in. long with a surface speed varying between 25 and 30 ft. per min. Broaches are good for about 5000 pieces between grinds and have an expected life of 80,000 pieces or 16

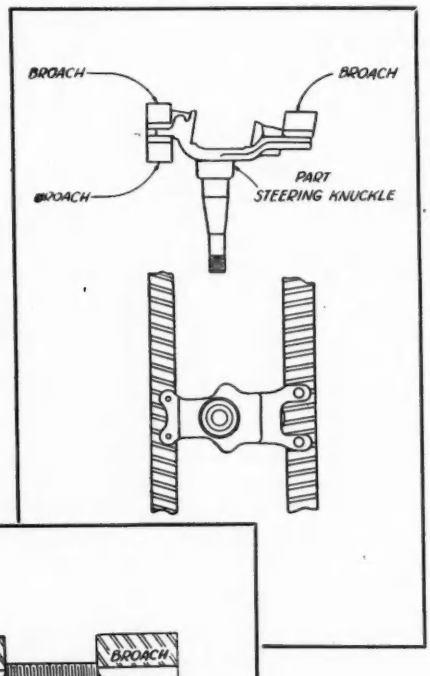


Fig. 1 — Broaching three surfaces simultaneously on a steering knuckle. Each broach is 39 in. long and good for 900 pieces between grinds

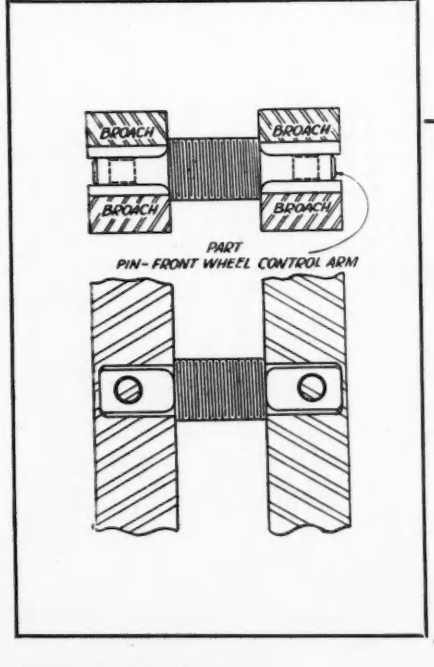


Fig. 2—Cutting four flats in one setting on front wheel control arm pin. Four pieces are handled in one setup

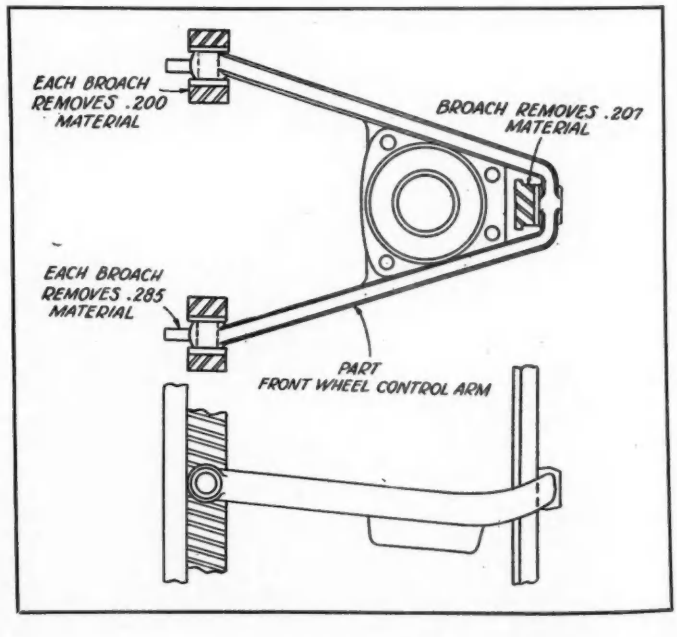


Fig. 3—Two operations are required to finish the bearing surfaces of the front wheel control arm. In the first operation four broaches finish the outer bosses while the second operation finishes the single inside surface

by Joseph Geschelin
Engineering Editor, Automotive Industries

Operations at Newcastle Plant

regrinds before replacement will be needed.

This job is set up on an American vertical automatic broaching machine.

One of the most complex surface broaching jobs to be seen anywhere is that of finishing a number of boss surfaces on the front wheel control arm shown in Fig. 3. It is handled in two operations. The first takes the four surfaces of the two arms, one pair of broaches removing 0.200 in. of material, each, the other taking a cut of 0.285 in.

The second operation takes the single boss at the closed end, removing 0.207 in. of stock.

The broaches used on the first operation are 36 in. long; for the second operation, 33¼ in. long. Surface speed cutting varies from 25 to 30 ft. per min. Broaches are good for 600 to 1200 pieces per grind and have an expected life of 15,000 pieces.

This particular job is tooled up on an Oilgear vertical hydraulic broaching machine.

Fig. 4 shows a welded tube 19 in. long from which a section of welded bead 7/8 in. wide is machined off. Two pieces are handled at a time using a formed broach reproducing a true cylindrical surface where the flash is cleaned up. The broaches are 18 5/8 in. long and operate at a cutting speed of 25 ft. per min. Even under the severe conditions of cutting a welding flash, the broach is good for 1200 pieces between grinds and has an expected life of 18,000 pieces.

The operation is set up on a Lapointe double head horizontal broaching machine.

We understand that most of the parts being finished by surface broaching at the Newcastle plant are fabricated of a modified S.A.E. 3155 steel having a Brinell hardness of 241 to 269 in some cases and 255 to 285 in others. The cutting fluid used on these operations is a 50-50 mixture of a heavy gear cutting oil with Super-Cut oil.

A résumé of the data pertaining to the broaches used in these groups of operations will be found in Table 1.

While it has not been possible for us to illustrate the details of the process completely as to the design of fixtures, method of application in the machine, etc., we believe that even the bare facts given here will demonstrate the wide range of applications of surface broaching to metal cutting problems in automotive shops.

Table 1—Broach Data

Description	Fig. No.	Broach Length (in.)	Surface Speed Cutting Ft. per min.	No Pieces per Grind	Life of Broach (Pieces)
Steering Knuckle	1	39	25	900	12,000
F. W. Control Arm Pin	2	39	25-30	5000	80,000
F. W. Lower Control Arm	3	1st oper-36 2nd oper-33¼	25–30	600–1200	15,000
Tube	4	18⅝	25	1200	18,000

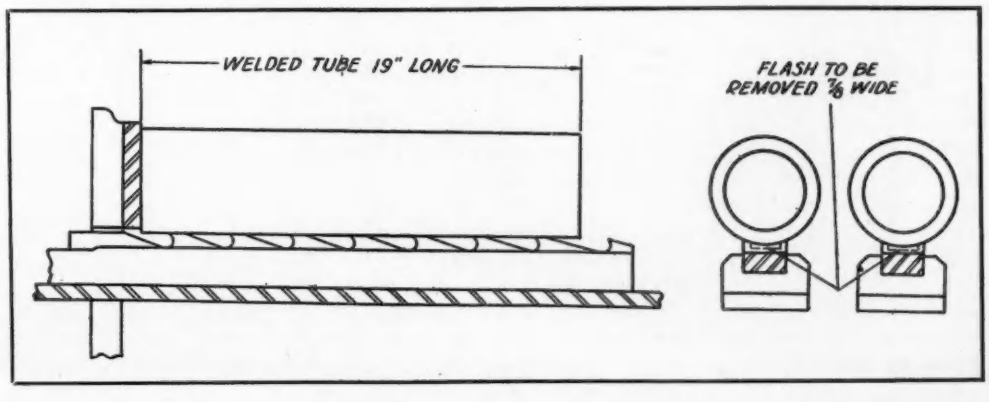
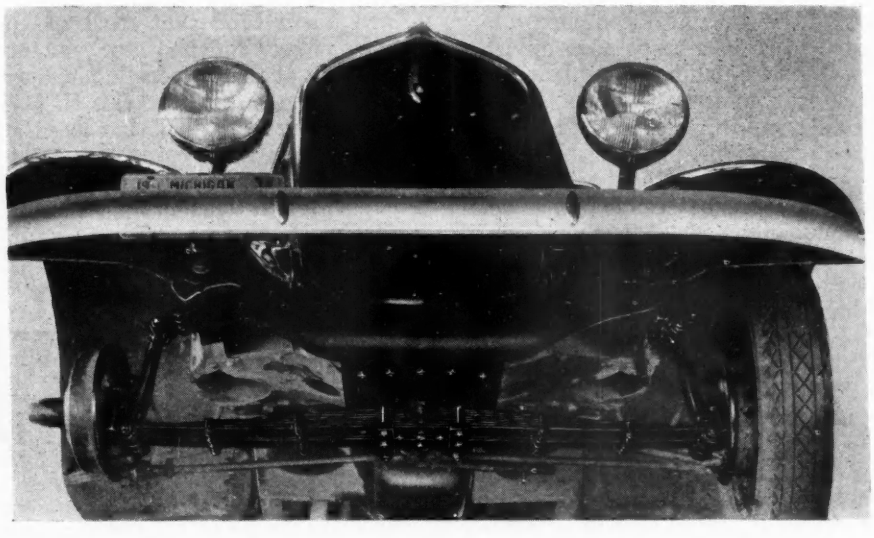


Fig. 4—Removing the welding flash by means of formed broaches which produce a true cylindrical section. Two tubes are handled in one set up with broaches 18⅝ in. long

Leaf Spring Institute Develops New Car with

Independent Suspension for All Wheels and Tubular Wishbone-Backbone Frame

by Athel F. Denham
Detroit Editor, Automotive Industries



Close-up of the front independent suspension developed by the Institute

INDEPENDENT springing with leaf springs, for all four wheels, and a tubular wishbone-backbone type frame are major features of the latest experimental car developed for the benefit of the industry cooperatively by members of the Leaf Spring Institute and other manufacturers.

The car, aside from its highly interesting mechanical design, details of which we are not permitted to divulge as yet, represents what probably is the finest piece of cooperative development the industry has ever seen. Fathered by the Leaf Spring Institute, code association for the leaf spring manufacturers, of which J. H. Shoemaker is code commissioner, it represents a further development of the independent springing research program instituted some time ago by this association under Mr. Shoemaker's direction.

Whereas former cars developed by the L.S.I. were adaptations to stock cars (*Automotive Industries*, May 19, 1934, Page 616), the newest car is developed from the ground up. In the work the Institute has obtained the ready cooperation of virtually every major parts and accessory manufacturer in the industry, supplying specialized technical advice, and in some cases specially developed parts for the actual assembly.

One of the factors which undoubtedly has contributed heavily toward making the latest design possible is the highly encouraging reception accorded the previous designs (front wheel suspension only).

The suspension itself does not depart materially in principle from that of the original suspension described previously in these columns. It consists of a double transverse spring, one behind the other, with the spring eyes double (military) wrapped for maximum road safety.

Above the springs, extending from the frame to the knuckle support are clevised rods forming a spring and rod "parallelogram" resulting in relatively small track changes in combination with a minimum of camber variation under spring deflections.

As previously described, the leaf springs are provided with progressive spring seats to shorten the effective length of the spring under heavy deflections. This cut in at about one inch of spring deflection from normal position.

For deflection of less than one inch, therefor, the maximum of freedom is permitted with minimum rate, for a good boulevard ride. With larger deflections there is an up to approximately 50 per cent of effective "shortening" of the spring. This provides an automatic increase in spring stiffness and spring rate for bad road conditions.

The same general suspension conception has also been applied at the rear in an interesting manner, details of which we are not permitted as yet to reveal. It also incorporates the progressive spring seats and double transverse springs.

Obviously in development work of this kind manufacturing and service problems arise in the study of the original engineering design. The availability of virtually all the best brains in the automobile parts plants has therefore proved a real benefit to the Leaf Spring Institute in the development of this car. A case in point is in connection with the method of attaching spring ends to the knuckle support arms.

Obviously the use of two parallel springs would on the face require an

accuracy of spring length control in manufacture that would increase manufacturing costs and also aggravate servicing problems. Cooperative research, however, uncovered an ingenious design of eccentric bushing and pin assembly, the use of which not only permits considerable manufacturing variations in spring lengths (within the usual reasonable limits of course), but also provides an extremely simple method for the service adjustment of caster and camber angles.

As to the new frame, which is of the tubular backbone plus double wishbone end type, the general idea is not new of course. It has been in use in Europe for some time past, but most of the foreign designs have been rather complicated and certainly more expensive to produce than would have been justified in this country.

What has been done for this experimental car is to take the general idea and apply to it principles of American design and production methods. The net result is a frame which appears to offer no major difficulties in production, is simple in design, and of decidedly lower weight than frames for comparable weight present day American cars.

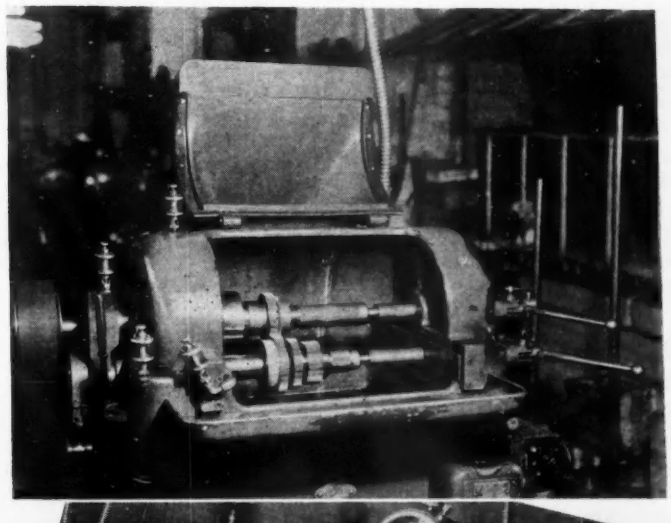
Actual figures on torsional stiffness and weight are not released as yet, but it can be said that the frame (for a 3000 to 4000 lb. car) can actually be handled by one man, an interesting sidelight on shipping and handling costs aside from the overall reduction in manufacturing cost achieved by a major weight reduction.

It is expected that the Leaf Spring Institute will be ready sometime within the next thirty days or so to reveal details of the new car.

Quality Control Safeguards Accuracy of Reo Self-Shifter Transmission

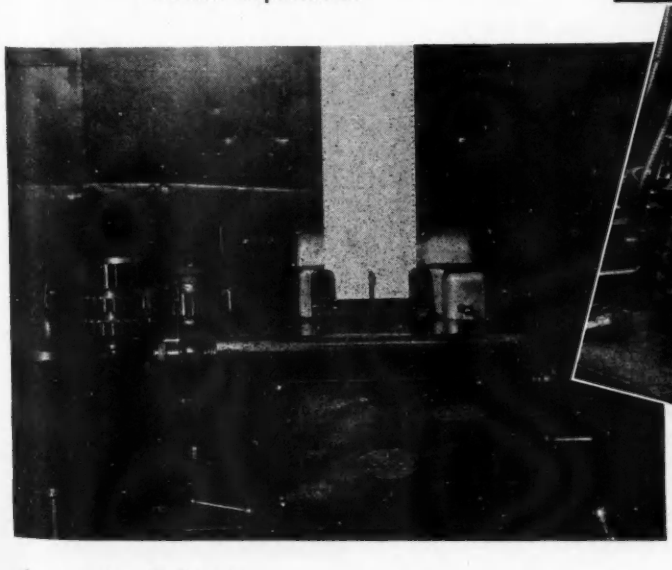
THE accompanying group of illustrations shows just three of the many quality control steps that safeguard the manufacture of the Reo Self-Shifter transmission. Incidentally, these three machines are a part of the new inspection and gear manufacturing equipment recently installed in the new Reo transmission line.

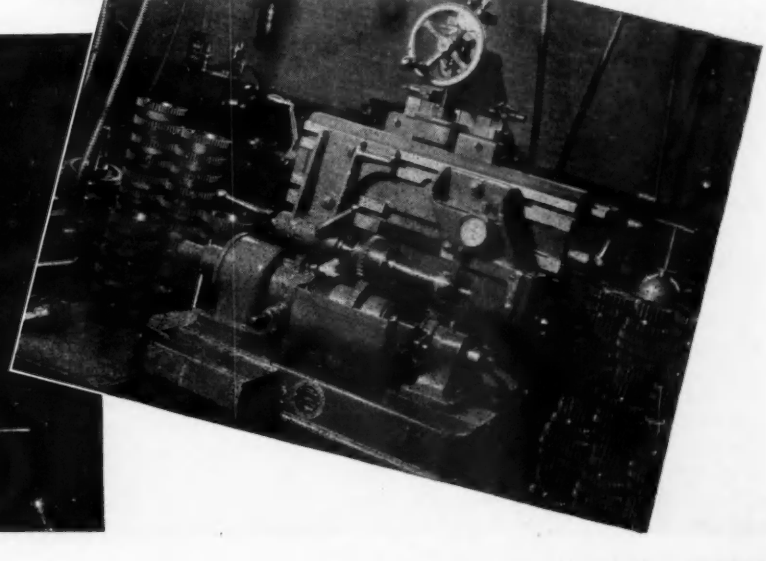
(Below at Left) Checking Reo transmission gears against a master gear on the Fellows "Red Liner." To pass muster, the gear must conform to the following tolerances; eccentricity, 0.002 in.; tooth form, 0.0005

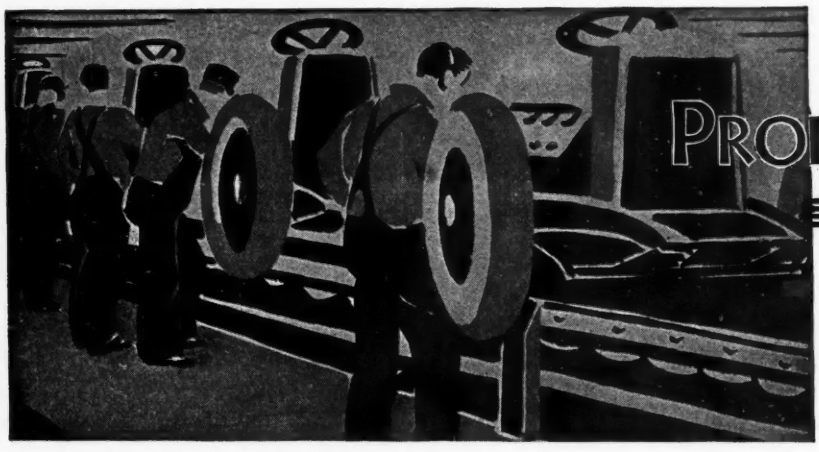


(Below at right) Gears being lapped in a "Red Ring" lapping machine made by the National Broach & Machine Co. In operation, the gear is oscillated back and forth across the face of the master lapping gear

(Right) No "silent" chamber needed when this testing machine (by National Broach & Machine Co.) is used. Pair or train of gears are mounted on the rotating shafts, hood is closed, operator listens to sound right in production department







PRODUCTION LINES

For Handling

They tell me that when plant engineers begin planning new materials handling layouts, a certain engineering bulletin is rather widely consulted. Be that as it may, Saginaw Products has a 1934 edition of its bulletin on conveyor materials, casters, trolleys, etc., ready for distribution. We can get you a copy if you're interested.

Knee Action

From what we hear through devious channels, it's no cinch to make front end coil springs. In fact we gather that one car builder has practically discontinued the manufacture of his own springs and has handed the job to a well-known spring manufacturing outfit. Render unto Caesar —etc.

Hard Liners

The parts maker we mentioned early this year is almost ready to talk about his new wet cylinder liner. It's made by a special process and will have an extremely hard surface—in excess of 900 Brinell. The question they are settling now is—what of the piston rings. One outstanding piston ring manufacturer is said to have something that suits the service to a tee.

Bouquets and Brickbats

Do brickbats win strikes or improve the bargaining power of labor? We took a look around a plant which recently went through a particularly serious labor disturbance. The walls are mute evidence of what happened. Scarcely a brick that doesn't bear a scar, particularly around the window frames. Incidentally, some of the brick throwers are at work in this plant during the inventory and clean up period.

Contrasts

Ideas about running plants vary as wiedly as do individuals. The contrasts are indeed startling. Here is a plant that we will tell you about later, that's laying out good money to achieve an ideal. Walls and ceilings are being painted in white. All manufacturing equipment including punch presses broaching machines, etc., is finished in cream color. Later we saw a number of plants that operate differently. Old machines, dingy walls and ceilings. Some improvement could be made even with the machines if they were kept clean, which they're not. Who is right. Which plant tends to operate more efficiently? In which plant is the worker likely to be happier and tend to turn out better work?

Bronze Bearings

Much activity in the way of leaded bronze bearings. Don't be surprised if you hear of a special composition with certain other ingredients added that permit lead content in excess of 30 per cent. Pretty soon such bearings will permit the use of crankshaft materials in any range of hardness without even the usual amount of wear.

Flexibility vs Costs

It's a real experience and an education to observe the operation of our automotive parts plants. Extreme flexibility of productive facilities is the outstanding characteristic of this industry. It makes for low overhead and production costs that rival the best efforts of the car builder. But many of these plants could do even better by bringing up to date certain of the production equipment. So much improvement has been made by the machine tool builders that it's almost business suicide not to take advantage of it.

Going Ahead

One important engine valve maker is going places with nitriding. The latest is the nitriding of austenitic valve stems, thus eliminating the need for special tip treatment. The thickness of the case is about 0.0015 in., and it takes 50 hours to do the job right. Another outstanding application is the oft discussed nitriding of cast irons. These people are putting in equipment for nitriding alloy iron cylinder liners, and you will hear about it very soon.

All Service

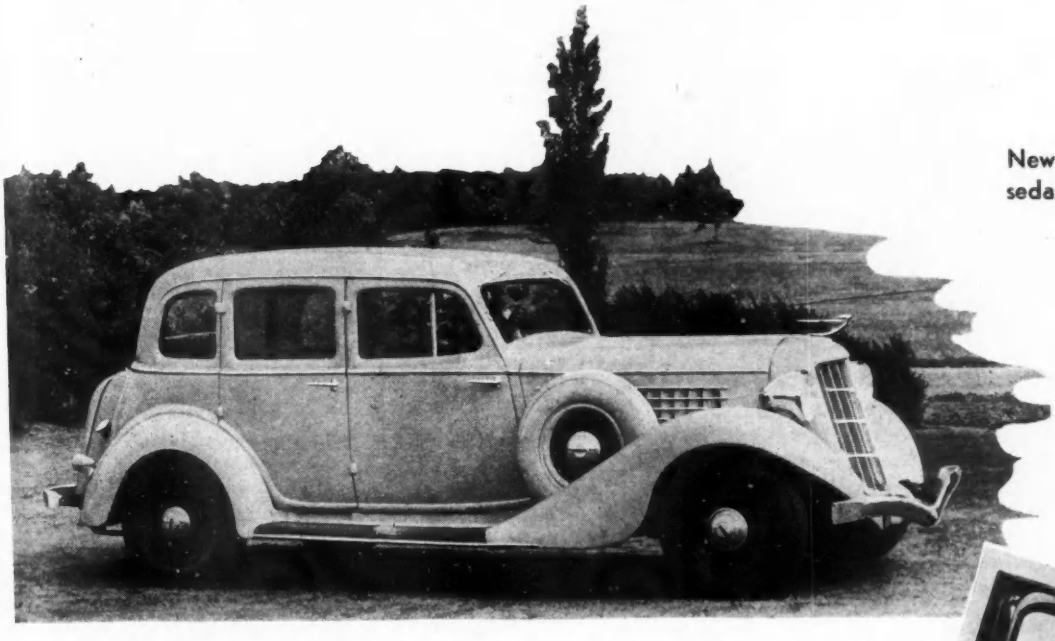
With appropriate and indeed pleasurable ceremonies Udylite welcomed a large group of Detroit's master platers to its new headquarters in the shadow of the Packard plant. We were there, of course. They've done a good job here—increased facilities for service, and plenty of room for the manufacture of certain new pieces of equipment. Perhaps we may be permitted soon to tell you about the new barrel plating outfit Udylite has developed—also their line of buffs.

Another Diesel

Had a ride in Toledo on a Diesel truck that's being driven across the continent by chief engineer Oetzel of Atlas Imperial. The truck is an International powered by a six-cylinder International valve-in-head engine converted into a fuel burner by the Atlas system. Conversion unit consists of a special head carrying individual electrically operated fuel injection valves, fed by a high pressure distributing unit. As we saw it, the job had a gross vehicle weight of about 15,000 lb. and according to the log, it made 15 miles to the gallon of fuel oil on level stretches.—J. G.

MANUFACTURING MANAGEMENT METALLURGY

The New 1935 Auburns



New Auburn 85 hp. six sedan with 120 in. wheelbase

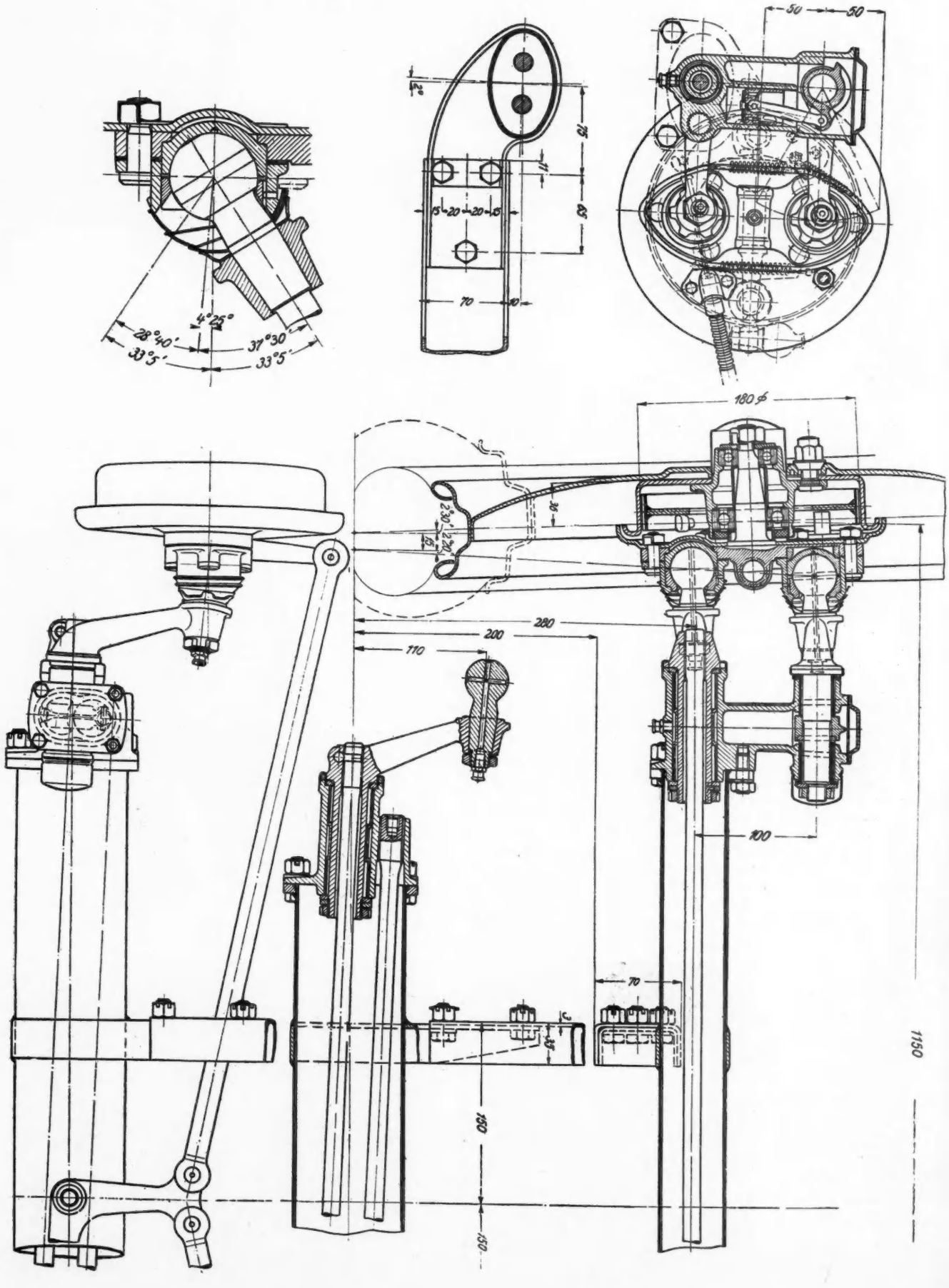
"WHILE mechanical details in the new 1935 Auburn series remain practically unchanged over the previous models, body lines have been improved through new radiator and hood lines and new hood louvers. In addition there are new wing and torpedo type fenders and slanting top lines which also tend to make this new series distinctive.

There are four body models available on both the 120 in. wheelbase six and 127 in. wheelbase eight. These models are as follows: 5 passenger sedan, 5 passenger two-door brougham, 2 passenger convertible cabriolet with rumble seat, and a 5 passenger convertible sedan. All models are of the custom type and dual ratio rear axle units may be had on any model at a slight additional cost.

Riding qualities are improved through redistribution of weight and the adoption of 16/6.50 tires on the eights and 17/5.50 tires on the sixes. On the latter 16/6.25 in. tires are optional at extra cost.

The garnish moulding of the rear door is in mahogany finish, the hardware in Butler finish. The non-sag pocket has a zipper opener

Side view of the Auburn four door sedan powered by a Lycoming straight eight developing 115 hp. The wheelbase is 127 in.



Scale drawings of torsion-bar front suspension for light car

Scale Drawings Show Details of Porsche Torsion Bar Suspension

THE Porsche torsion bar suspension, which was first shown to the public at the Berlin automobile show a year and a half ago, has met with a certain degree of success in Europe, having been adopted for use on stock cars by Mathis and Roehr among others and being used also on the Auto-Union racer with rear-mounted engine which won the Grand Prize of Germany race, as reported in our issue of Aug. 11. Photographs and drawings of this suspension system have been printed in previous issues of *Automotive Industries* and we reproduce herewith some scale drawings of a front-end suspension from an article by Rudolf Mertz in ATZ.

In the design illustrated, front suspension is effected by means of two alloy steel bars enclosed in a tubular cross member of the frame, the tube being of oval section. The steering knuckle is provided with two ball sockets by means of which it is supported at the ends of two single-arm levers, of which one is secured to the end of one of the torsion bars, while the other is formed integral with a short shaft. Both shafts have their bearings in a housing which is flange-bolted to the end of the tubular frame member and which also contains the hydraulic shock absorber. The spherical joints between the lever arms and the steering knuckle serve a double purpose in that they permit angular motion of the knuckle around the line through the centers of the two balls, as required for steering, and motion of the sockets around the axes of the ball studs, as required for spring action. The torsion bars have their ends upset and splined, and the two ends are of different diameters. The free end of the torsion bar is supported by needle bearings, the needles surrounding the hub of the lever, and this enlarged diameter of the journal together with the fact that there are two needle bearings at each end seems to make it possible to provide adequate bearing surface.

To provide convenient means for angularly adjusting the arms of the suspension system, the two upset ends of the torsion bars are provided with different numbers of splines. If n_1 is the number of splines at one end and n_2 that at the other, the minimum angle of adjustment is $360/(n_1 n_2)$ deg.

The material used for the torsion bar can be worked at a normal stress of 70,000 lb. per sq. in. and the maximum stress should not exceed 110,000 lb. per sq. in. The required diameter of the torsion bars is

$$d = \sqrt[3]{\frac{16\,P\,R}{\pi\,S}}$$

If we make $S = 70{,}000$ this reduces to

$$d = \sqrt[3]{P\,R\,/\,13{,}700} \text{ in.}$$

in which R is the effective length of the lever arm in in. and P the load on the arm (half the forward sprung weight) in lb.

The maximum possible length of the bars must be determined on the drawings, and if the length l has been fixed the rate of the spring is

$$r = \frac{\pi\,F\,d^4}{32\,l\,R^2} \text{ lb. per in.}$$

Since F, the modulus of elasticity in shear, is equal to about 11,600,000 lb. per sq. in., this reduces to

$$r = \frac{1{,}140{,}000\,d^4}{l\,R^2} \text{ lb. per in.}$$

The static deflection f under load is W/r, where W is the sprung weight carried by one wheel. The maximum possible deflection f_{max} is determined by the stops, and the maximum stress in the spring material then is

$$S_{max} = S\,(f_{max}/f)$$

The deflection under normal load is a measure of the softness or comfort of the suspension, though some engineers prefer to gage this by the time of one period of vibration of the sprung mass which is related to the deflection f by the equation

$$t = \sqrt{f/9.75} \text{ sec.}$$

The suspension is comfortable when the time of one cycle is about 0.65 sec.; that is, when the frequency is about 90 per minute.

It will be seen from the drawing that while the lower one of the two arms carrying the steering knuckle is secured to the end of the torsion bar, the upper one has the arm of the hydraulic shock absorber secured to it. Other details can be seen from the drawings. The design is for a small car of 46 in. tread and for a maximum spring action of 4 in.

Permanent Mold Casting for Supercharger Rotor

BECAUSE the cost of a supercharger rotor always has been a matter of concern, the successful outcome of the Graham supercharger development is of interest.

The Bohn Aluminum & Brass Corporation, which manufactures this rotor and other parts of the supercharger, has been able to perfect an aluminum alloy having a tensile strength of 50,000 pounds per square inch which makes possible the use of a permanent mold casting. These rotors have been tested up to 45,000 r.p.m. and they have been run 100 hours continuously at exceedingly high-speed without failure. Thus, since the highest rotative speed of the part in actual service is 28,000-29,000 r.p.m., the high factor of safety is apparent.

This permanent mold casting has a greater tensile strength than mild steel. The number of machining operations necessary on the casting are very few and inexpensive. The rotor leaves the permanent mold almost as a finished part.

The Forum

New Device for Driving Accessories To Improve Acceleration in Gears

Editor, AUTOMOTIVE INDUSTRIES:

In a recent issue of *Automotive Industries* I note some remarks by C. T. Doman relative to the amount of power consumed in driving the fan of a motor car engine. Mr. Doman's remarks were evidently addressed to a previous Forum contributor who considered electrical driving of the fan. Mr. Doman's figures of the power consumed in fan operation were highly enlightening, and if the industry in general would go further into the matter of the power required to drive engine accessories some rather startling figures would be brought forth, especially in view of the adoption of the new large generators.

No doubt the idea behind the electrical operation of the engine fan was to relieve the engine of the necessity of driving the fan, with probably the thought that the power saved in this operation might be applied to the rear wheels. However, there are two other offenders, equally guilty with the fan, namely, the water pump and the generator; and if a means were found to drive the fan independently of the motor only half of the problem would be solved.

The average American passenger car engine is of such high power that the power consumed in driving these accessories does not materially affect the already too high speed possibilities. But, if an engine is relieved of the necessity of supplying power for operating fan, water pump and generator, then this power is left free to be applied to the rear wheels, thereby increasing acceleration, a feature widely advertised today by the motor car manufacturers. The car mentioned by Mr. Doman required 7 hp. to drive the fan and probably 10 hp. to drive all accessories. Now, if this salvaged power were applied to the rear wheels the accelerating ability would have been greatly increased.

It is possible and practical to relieve the engine of the necessity of supplying the power for operating the fan, water pump and generator while driving through the gear box speeds, and this power, amounting to from 5 to 10 hp. in the average American production motor car, if applied to the rear wheels, would greatly increase the accelerating ability of any car.

Patents are about to be issued on a system for relieving a motorcar or truck engine of the necessity of supplying power for all engine accessories upon going through the gear box speeds, thereby increasing the power in-put to the rear wheels and greatly increasing the accelerating ability. On European productions, especially on cars around 10 to 14 hp., a material change in the performance characteristics would be evident on the adoption of this system. Increasing the average engine output by from 5 to 10 hp. has been found a rather costly proposition in the past, while the system mentioned above is relatively inexpensive for accomplishing the same result and involves no change in the engine construction, valves, carburetor, ignition, transmission or rear axle.

WILLIAM E. GILMORE.

Automatic Transmissions with Control by Accelerator Pedal

Editor, AUTOMOTIVE INDUSTRIES:

Mr. Todd made out a strong case for the automatic transmission in his article in the July 14 issue of *Automotive Industries.* His statements were clear and to the point and one could not help but be impressed by his logic.

During the last few years, a number of automatic and semi-automatic transmissions have been developed. From these a great deal of knowledge has been obtained as to what an automatic transmission should do in the way of performance. The designs have become less infested with bugs as development has proceeded; also more compact, sturdier and durable. Features have been incorporated tending to make a purely mechanical device "think" along the same lines as the driver, to do what he wants it to do and at the right moment.

The purely automatic transmission which will do certain things under definite fixed conditions of operation, regardless of the wishes of the driver, is not desirable. Something must be added to the fully automatic type which will permit the operator to have some measure of control over it. This control must be exercised almost unconsciously and should certainly not involve a manual operation.

What is it that the driver might wish to do? He will want to be able to give the engine full throttle, at relatively low car speed, and still have the transmission stay in high. With the powerful engines built into most of our automobiles, fairly rapid acceleration is possible in direct drive. It is annoying, especially in traffic, to have the transmission drop to second at speeds between 10 and 15 m.p.h. when the driver is forced to crawl along, not being able to accelerate. The objection is probably due to increased engine noise as well as gear hum. Secondly, he may want rapid acceleration at high car speed and will want to drop down to second gear. Obviously, both conditions cannot be met by a purely automatic unit. If the transmission is designed to meet the first of the above conditions, a control must be provided for the second. The accelerator pedal is the natural control element, its proper operation overcoming, to a certain extent, the automatic feature of the unit.

It would seem, also, that the accelerator pedal ought to be made use

of in obtaining torque control, since the position of this pedal is practically indicative of the torque output of the engine. Car speed would furnish the complementary control, in one of a number of ways that come to mind. With a purely automatic transmission designed to operate on both torque and speed, it should be possible to accelerate rapidly to a high velocity before direct drive is engaged. However, the change of gears from low up to high and back again under the same condition of throttle operation must not occur at identical car speeds. A lag in speed for the change down is essential. In other words, if the change from second to high at full throttle opening occurs at 35 m.p.h., the shift from high to second at the same throttle position should occur at about half this speed. Similarly, between first and second. At part throttle opening, the shifts both up and down should occur at correspondingly lower car speeds. This for the convenience of the driver who wishes to loaf along mostly in high.

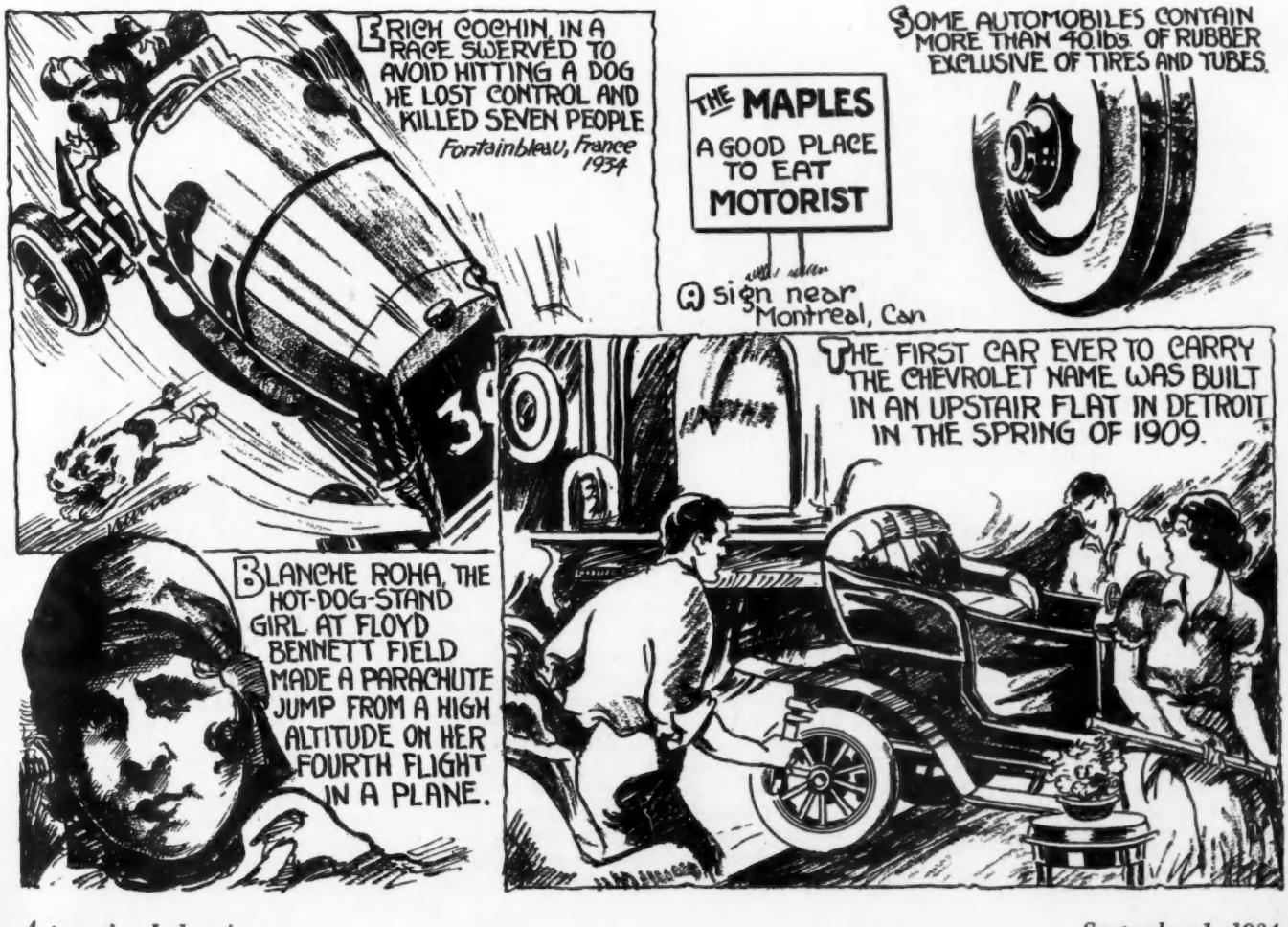
For a smooth change from one gear ratio to another, friction disc clutches are certainly preferable to tooth-clutches, even though some shock absorbing device such as a torsion spring is incorporated in the latter design. The friction clutch may be allowed to take hold rather suddenly and, if its torque value is not excessive, will not produce an objectionable jolt; nor is a too gradual engagement permissible, for the clutch will then slip under a gradually increasing load, resulting in heating and scoring of the clutch material. The use of friction clutches may make it unnecessary to go to a four-speed transmission, although possibly no advantages may result by so doing, considering simplicity and compactness of design.

The designer must also bear in mind the need of a positive gear for use in braking the car in down-hill driving. It has been advanced that such a need is an indication of poor brakes and that the engine should not be used as a pump. Even so, it is mighty comforting for a driver to know that a positive intermediate gear is available in case of an emergency. Manual control of this gear ratio is probably the only solution. The automatic features must certainly be neutralized during this period.

Consider, then, the driver whose car is equipped with a controlled automatic transmission and who is in a hurry. Traveling at, say m.p.h., he encounters a steep grad and the car slows down to 35 or 30 m.p.h. He steps down hard on the accelerator pedal, the transmission disengages direct drive and as the engine speeds up, second speed gears take hold, and the car accelerates rapidly up the hill. At the top, he eases up on the accelerator, direct drive clutch engages smoothly and noiselessly, engine speed decreases, and the car speeds along in high. There has been no interruption of torque from engine to wheels, no slowing up in speed, no effort on the driver's part.

The slow driver, on meeting the same grade, gradually increases the throttle opening as the car slows down to between 15 and 18 m.p.h. At this point, the engine is heard to speed up, intermediate gears take hold and the car proceeds up without effort. On a level grade, he will push along at 15 or 10 m.p.h. and still be in high. A sudden decision to accelerate, resulting in his stepping further down on his accelerator, will cause disengagement of direct drive in the transmission.

R. M. NARDONE,
Electrical and Transportation Engineering, Detroit.

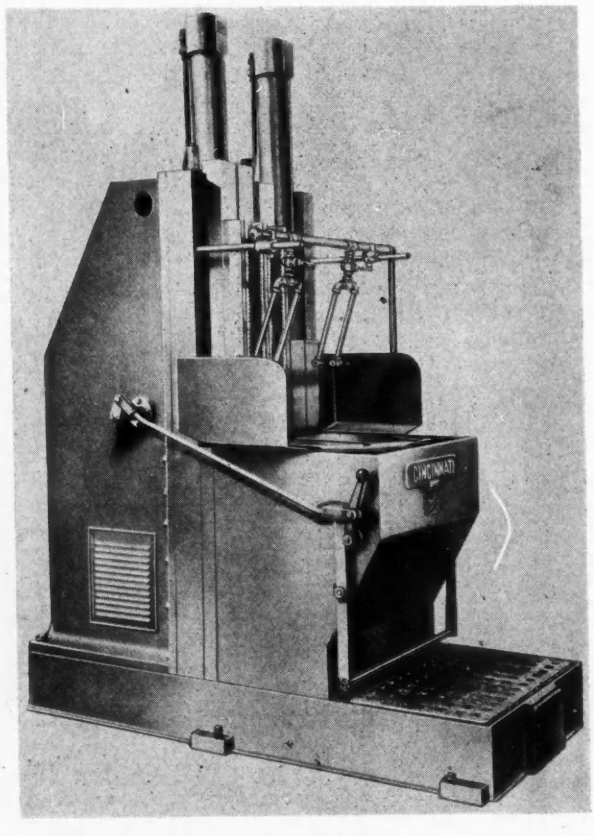

ERICH COCHIN, IN A RACE SWERVED TO AVOID HITTING A DOG HE LOST CONTROL AND KILLED SEVEN PEOPLE
Fontainbleau, France 1934
THE MAPLES
A GOOD PLACE TO EAT
MOTORIST
a sign near Montreal, Can
SOME AUTOMOBILES CONTAIN MORE THAN 40 lbs. OF RUBBER EXCLUSIVE OF TIRES AND TUBES.
BLANCHE ROHA, THE HOT-DOG-STAND GIRL AT FLOYD BENNETT FIELD MADE A PARACHUTE JUMP FROM A HIGH ALTITUDE ON HER FOURTH FLIGHT IN A PLANE.
THE FIRST CAR EVER TO CARRY THE CHEVROLET NAME WAS BUILT IN AN UPSTAIR FLAT IN DETROIT IN THE SPRING OF 1909.

NEW DEVELOPMENTS

Automotive Parts, Accessories and Production Tools

The New Cincinnati Hydro-Broach Machines

The Cincinnati Milling Machine Company, Cincinnati, Ohio, now offers complete broaching machine equipment for any kind of surface broaching. The addition of a line of hydraulically operated duplex vertical broaching machines to the line of manufacturing milling machines enables this company to offer users of high-production equipment, cost-reducing milling or broaching equipment which will meet their requirements as to production, size, finish, etc.



The Cincinnati vertical duplex broaching machines which make up the Hydro-Broach line are said to have been designed to give the best possibilities for surface broaching and to do this most economically. There are three machines of 2, 5 and 10-ton capacity, each having a normal and extended stroke.

The indexing of the table is controlled by an hydraulic mechanism interlocked with the operation of the vertical rams. The broach on the descending ram engages the work in the fixture which has been indexed to the cutting position, while the fixture on the opposite side of the table has been indexed to clear the broach on the ascending ram. At the completion of the cutting stroke of one ram the return stroke of the other ram the rams stop, the work-table indexes, the rams reverse their direction of movement, and the cycle of operation repeats itself. Indexing time is small. Practically continuous production is obtained, the operator removes and replaces work in one fixture while the work in the other fixture is broached. A rigid support is provided for the work-table, which indexes on hardened and ground plates supported by the massive fixed knee.

The automatic cycle is a pace setter for the operator. He may find that he cannot keep up with the machine, in which case the machine may be stopped immediately by kicking the treadle bar with either foot from any position on the platform. The ram movement can be reversed if so desired after stoppage by exerting pressure on the hand lever located on either side of the fixed knee.

The most important advantage claimed for these machines is unusually fast operation and high productivity. The broaching tool is basked up by a heavy broach ram which slides in the guide ways of a rugged vertical column. This provides a rigid support for the tool, also eliminates vibration and contributes to longer tool life. Tool life is increased by the cushioning effect of the hydraulic pressure that moves the broach rams.

Fixtures are simplified, as the forces set up by the broaching operation act in readily ascertainable directions. Sometimes no actual clamping of the work is required. Loading and removal time is usually low, and high production results because little clamping is required.

Each size is available in two stroke lengths, e.g., 2-ton, 36 and 48 in. stroke; 5-ton, 42 and 54 in.; 10-ton, 54 and 66 in. Maximum broach length corresponding to each size is as follows: 32, 44, 38, 50, 50 and 62 in. Net weight corresponding to each size is respectively: 10,000, 11,000, 13,000, 14,000, 17,000 and 18,000 lb.

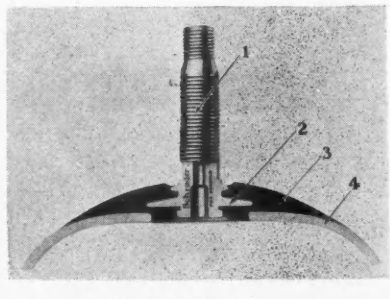
In addition to the standard line the company has built a number of special broaching machines of the horizontal, vertical and rotary type.

New Tire Valve Base Eliminates All Joints

A. Schrader's Son, Inc., has developed a new type of tire valve with a large rubber base molded to the metal stem. This rubber base is cured to the inner tube, thus eliminating all joints around the valve base.

The new method of curing the valve to the tube rubber avoids clamping it in place with nuts and washers. The rubber base is securely attached and has the firm support of an inlaid reinforcement of metal, which is part of the valve stem.

The valve will pull back into the tire in case of a flat if rim nut is not used. It fits any rim hole and can be used

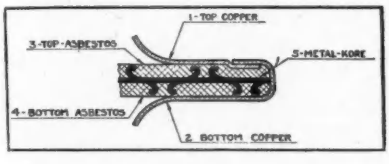


1—Standard Schrader valve stem, 2—modified standard metal base, 3—rubber covered base cured onto metal stem base, and 4—inner tube wall

on any standard type tube. A few valves replace the entire line of straight and convertible valves for passenger cars and trucks.

New Heavy-Duty Gasket

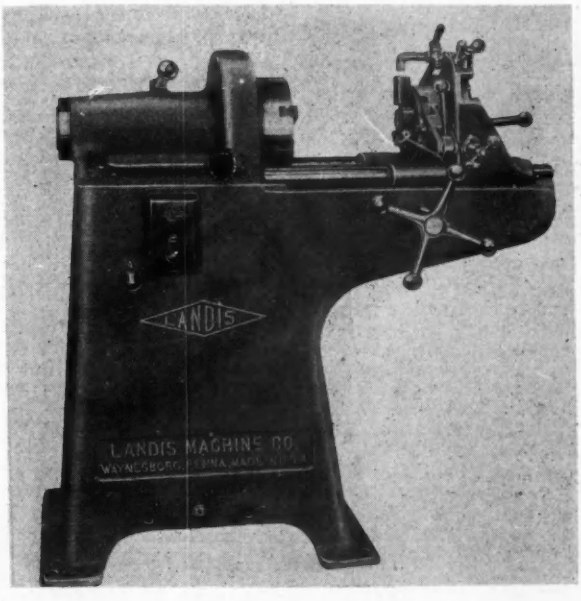
The Fitzgerald Manufacturing Company is in production on a new high compression heavy duty gasket having a metal-core and asbestos filler. The top and bottom surfaces of the gasket are made of copper. Next to both the top and bottom outer surface of copper,



a regular thickness of asbestos sheet is placed, thus providing two thicknesses of asbestos. Between the two sheets of asbestos there is a metal insert fastended by means of pronged barbs. These barbs are imbedded under pressure into both sheets of asbestos. Finally the metal core filler is sheathed in a copper covering, top and bottom.

NEW DEVELOPMENTS

Automotive Parts, Accessories and Production Tools



Pipe and Bolt Threading Machine

A combination pipe and bolt threading machine, the "Litle Landis," is announced by the Landis Machine Company, Waynesboro, Pa. This machine employs the distinctive Landis die head and the Landis long-life patented chaser. The machine is of the lathe type, in which the work is revolved. It is designed to thread, ream and cut off pipe and thread bolts, rods, etc.

The machine is made in the motor-driven type only, employing a 1-hp. motor and control of the industrial type. The motor is mounted in an inclosed compartment in the bed and is connected to the geared headstock by means of a silent chain drive.

The Landis die heads are on an entirely new design, combining light weight and maximum rigidity and strength. The heads are of the quick-opening type and have a universal adjustment for size. Two die heads, having a combined capacity of ¼ in. to 2 in., are furnished as standard equipment. By applying bolt chaser holders, the 2-in. head can be used for threading bolts from ⅜ in. to 1¼ in. The die heads are adjusted for diameter through a self-locking ratchet screw.

Description of the Sellers No. 05D Drill Grinder

The No. 05D Drill Grinder, recently announced by Wm. Sellers and Co., Inc., Philadelphia, Pa., is a self-contained grinder of the bench type with built-in

motor, push button control and Alemite lubrication, for grinding drills from 1/16 in. to ½ in. in diameter. It is an accurate, convenient, and fast machine and said to produce the drill point recommended by leading drill manufacturers. It has been brought out to furnish users of small drills with a machine that will not only sharpen dulled drills accurately and rapidly but will also reclaim broken drills with speed and economy.

Behind this small machine are the many years of experience in building larger grinders, of which the present day No. 2 B Drill Grinder is the most outstanding. The unique Sellers chuck and method of grinding, as found in all Sellers Drill Grinders, has, in principle, been incorporated in this small grinder so that users of this machine can be assured of the same accuracy and efficiency that users of the larger grinders enjoy.

The chuck is particularly interesting in that it is the key to rapid clamping and unclamping. The photograph clearly shows an open unobstructed space permitting easy insertion of even the most delicate drills. Only one-quarter turn of the clamping knob is required to securely grip the drill in the sturdy jaws.

The drill is held at three points—between two hardened steel jaws gripping on the edges of the flutes as close as possible to the cutting lips and an adjustable back center supporting the shank of the drill, leaving the body of the drill entirely free. The chuck is quickly opened to receive the drill, or closed upon it by merely turning the convenient hand wheel provided. The chuck clamps the drill mechanically, so that no hand pressure is required to hold the drill while being ground.

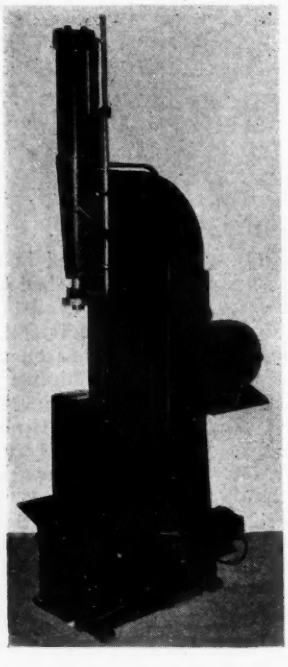
NEW DEVELOPMENTS

Automotive Parts, Accessories and Production Tools

Fox Three-Ton Broaching Press

The 3-ton broaching press, illustrated, is one of a series of hydraulic forcing and broaching machines being offered by the Fox Machine Company, Jackson, Mich. The frame is of one-piece construction; the base serves as a reservoir for cutting compound and the column serves as a reservoir for the oil.

A Vickers hydraulic feed pump is mounted on a bracket in a unit with its driving motor. The control valve is located in a recess at the back of the frame in such a way that all piping is contained within the frame.



The nose of the ram carries an arm which in turn supports a vertical rod on which are located two stops. One of these determines the depth of the stroke, the other determines the distance to which the ram returns on its upstroke.

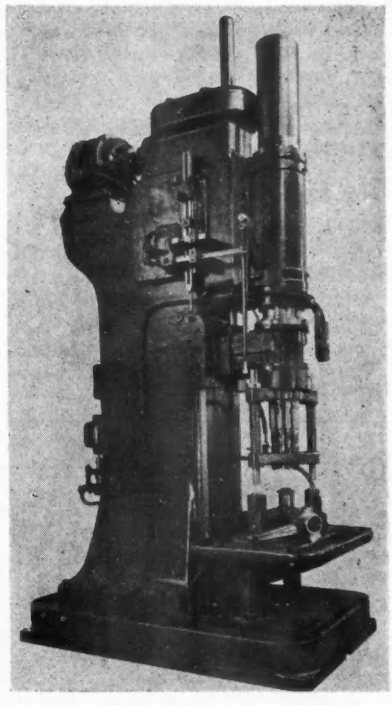
When the operator steps on the pedal or pulls down the hand lever, the control valve is latched in position to provide down movement for the ram. As soon as the desired depth has been obtained, the ram will automatically return. At any time during the downstroke, the operator can push the hand lever up and produce the up movement of the ram. When the ram reaches its upper set position, the pump delivery is by-passed so as not to be working against pressure.

The flow of compound to the broach occurs only when the ram is moving in a downward direction. As soon as the ram reverses, the flow is automatically cut off. The 3-ton machine weighs approximately 1900 lb. with the motor.

Barnes Hydraulic Feed Drill Machine

Barnes Drill Co., Rockford, Ill., has placed on the market a new heavy-duty hydraulic feed drilling machine, the No. H-3½ Hydram Driller, having a capacity of 3½ in. drilling in S.A.E. 1035 steel. In this machine the hydraulic pressure for feeding is brought directly over the center of the head and cutting tools. The hydraulic unit has great versatility as to spindle travel, multiple head interchangeability, and is suitable for vertical, horizontal and inclined heads.

The illustration shows an adaptation with a nine-spindle auxiliary head for drilling the master connecting rod for an aircraft engine. Eight of the bores are 22.5 mm. in diameter, the ninth bore is 18.41 mm. diameter.



According to the manufacturer, the Hydram hydraulic unit may be used independently of the standard machine frame for many special drilling applications. By special adaptation, the Hydram unit may be arranged for cylinder boring.

Floor space required by the machine illustrated here is 48 x 76½ in. Motor recommended for work up to 3½ in. in steel is 25 hp., 1200 r.p.m.

A Vestibuled Train for Super Highways

A VESTIBULED train for use on super highways has been developed by an Italian engineer, Sig. Baratelli, and is intended to offer passengers all of the comforts which they enjoy in modern railway trains. Modern buses have very comfortable seats and their sides are nearly entirely of glass so that passengers can enjoy the scenery of the countryside, but Sig. Baratelli thinks they consider it a hardship that they are confined to their seats as long as the bus is in motion, and his design is intended to remedy this assumed defect. He couples two vehicles of similar outward appearance together, not by the usual coupling bars as used between four-wheeled tractors and trailers, but by a form of railway coupling. The rear end of the leading and the forward end of the trailing car both are provided with double hinged doors. When the doors are opened a vestibuled passage is formed between the two vehicles so that passengers can pass from one to the other even with the train in motion. The vestibule is of the bellows type and consists of a flexible spring-steel supporting structure with a covering of pliant material. Two trains of this type with a seating capacity of 120 each, on Fiat and Alfa Romeo chassis, were shown at the Milan Fair some time ago by the Italian body-building firm Fratelli Macchi.

* * *

Plan Program for Diesel Fuel Study

THE program-drafting sub-committee of the S.A.E.-A.S.M.E. Joint Committee on Diesel Fuels has recently made a report, in which it recommends certain research work on the basis of which Diesel fuels could be rationally standardized. It is proposed that in the first place the C.F.R. test engine be further developed for use in making tests of Diesel fuels; that the optimum standards for engine factors

(air turbulence, carbon deposits, fuel temperature, and engine speed) be determined, and that the results of laboratory tests with the engine be properly coordinated with field tests. The subcommittee suggests that a steering committee of not less than three and not more than five members be appointed to coordinate the experimental work and to submit periodical reports on its progress. A proposed outline of procedure is incorporated in the report, for the guidance of the steering committee.

Mimeographed copies of the complete report, which contains a rough survey of the present fuel oil market, a history of past efforts at standardization and the present status of fuel specifications of engine manufacturers, a discussion of ignition characteristics and methods of their determination, and four appendices giving detailed accounts of specific researches on ignition characteristics, can be obtained for 50 cents from N. J. Reed, Secretary, Sub-committee on Program Drafting, c/o Diesel Engine Manufacturers Association, 2 W. 45th Street, New York.

New Magnet Steel Is An Aluminum Alloy

AN improved magnet steel containing aluminum is reported to have been developed by Dr. Mishima of Tokyo. It may be recalled that the steel originally used for magneto magnets was tungsten steel. During the war chromium steels came into use because the tungsten was needed for steels for cutting tools. Later cobalt steels and cobalt-chromium steels were developed, the former having better magnetic properties than any magnet steel previously known. The steel of Dr. Mishima, known as the M.K. steel contains between 10 and 40 per cent of nickel and between 1 and 20 per cent of aluminum, the preferred composition being 25 per cent nickel, 10 per cent aluminum and 65 per cent iron. Its magnetic qualities are said to be ten times as good as those of the original tungsten steel and also better than those of cobalt and chromium steels. The maximum coercive force is 660 gauss and the maximum specific magnetic energy, 86,000 ergs per c.c. (0.104 ft-lb. per cu. in.). Only the 60-per cent cobalt steel, which is much more expensive, approaches these qualities, it is asserted.

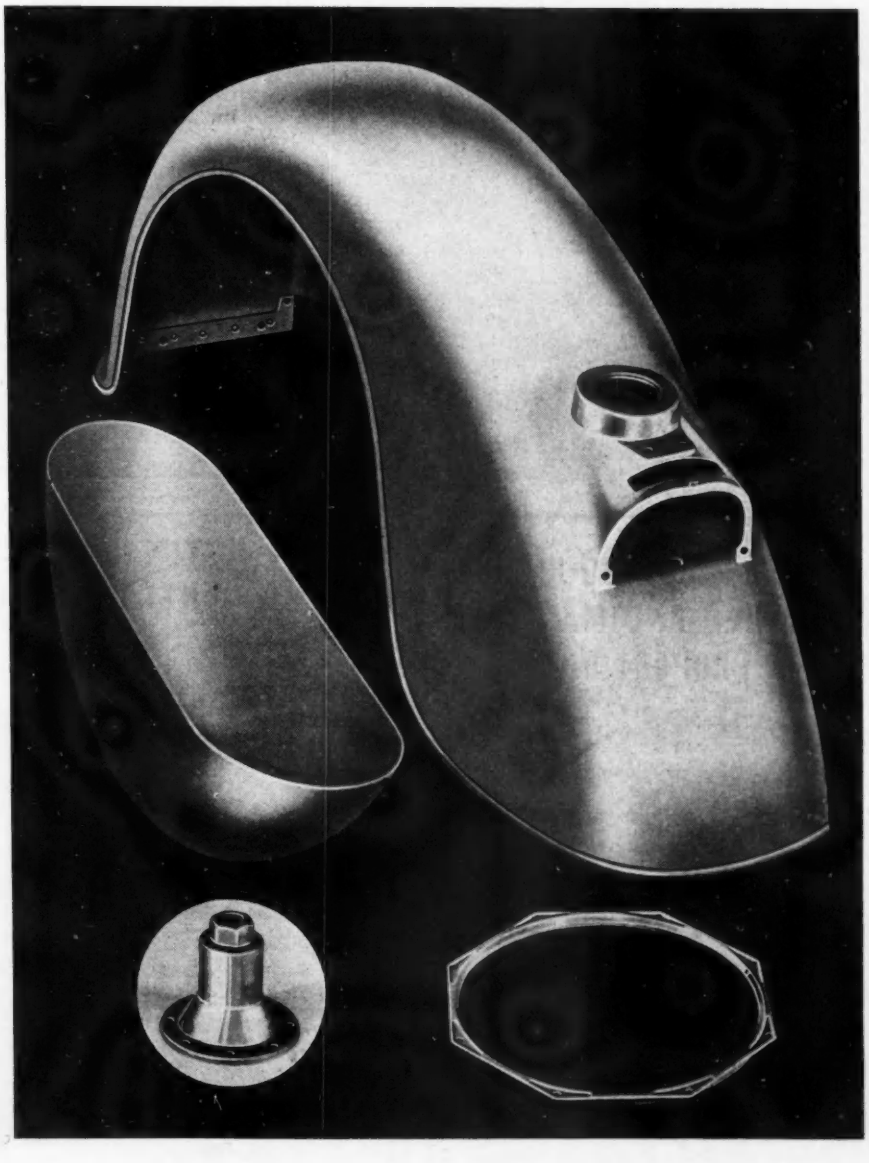
Another advantage of the M.K. steel, which has a specific gravity about 10 per cent less than that of conventional magnet steel, is that it retains its magnetic qualities up to about 1100 deg. F. Thus magnets mounted in proximity to the hot parts of internal combustion engines are not likely to lose in magnetic strength.

According to an article in *La Nature* for May 1, manufacture of the M.K. magnet steel has been undertaken by several European steel makers and there has been a brisk demand for it from magneto manufacturers.

YORK

YORK STAMPINGS

DEEP drawn stampings and welded assemblies are part of the regular run-of-the-shop production at York. We are supplying the manufacturers of motor cars, motor trucks, and tractors with accurate stampings which eliminate trouble in the car-assembly. Let us quote on your requirements.



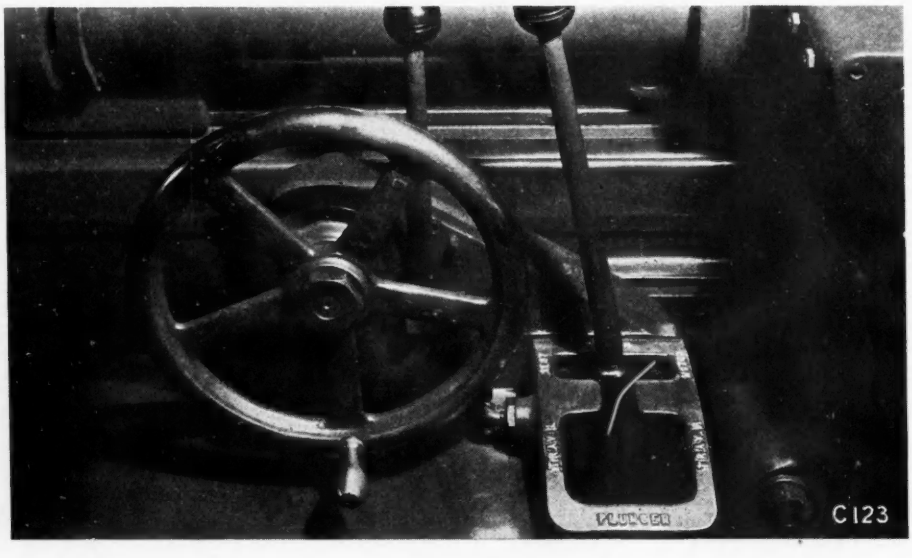
YORK CORRUGATING CO., YORK, PA.

Manufacturers of Crank, Cam, Piston, Valve Face, Side Gear, Internal, Ball Race, Plain and Universal Grinders for the automotive industry.

LANDIS TOOL CO.

LANDIS ANNOUNCES NEW

SINGLE LEVER CONTROLS SEVEN MOVEMENTS



SAFETY ASSURED BY UNIQUE MAIN CONTROL ARRANGEMENT

This new machine, like all other Landis Hydraulic Crank Pin Grinders, grinds every pin of the crankshaft with but one handling of the work. To make operation more convenient than ever before, a unique control lever has been provided. Seven distinct machine movements are easily controlled by it.

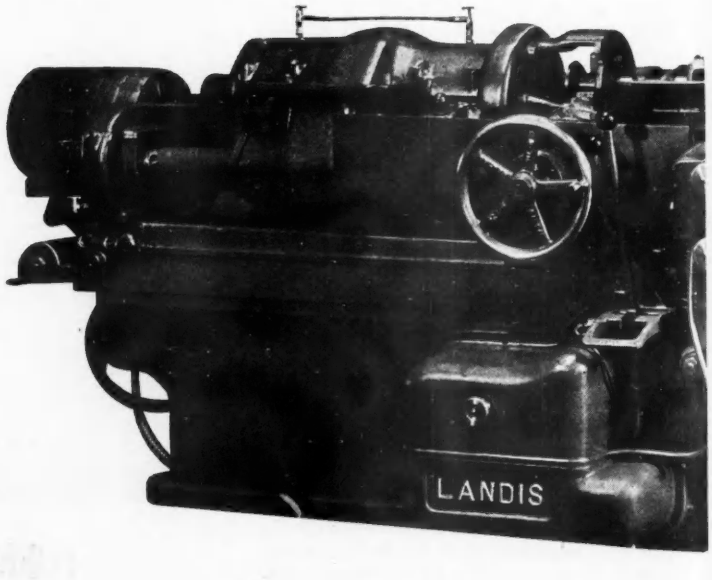
Numerous safety features have been provided to protect both the machine and operator. A mechanical interlock in connection with a rather unusual electric and hydraulic hook-up simply makes it impossible for the operator to inadvertently cause a machine movement to take place at the incorrect time in the cycle.

The various safety features are developed to such an extent that if pressure in the hydraulic system drops, for any reason whatsoever, work rotation will automatically stop.

NEW MACHINE HIGHLY REFINED AND MASSIVELY PROPORTIONED

The new Landis 16" Type D Hydraulic Crank Pin Grinder is the latest Landis Tool Company development for the rapid production grinding of crank pins. It represents the result of nine years' experience in the building of such machines.

From end to end it is of sturdy, well proportioned design. Work table and wheel head guides are large and widely spaced. Crank head and wheel spindles and bearings are larger than they have been heretofore. The stationary hydraulic work rest is a massive bridge casting secured firmly to the bed at two points.

All of this well placed weight and rigidity permits rapid stock removal without vibration being set up in the machine which, in turn, is responsible for a higher standard of work output.

THE LANDIS TYPE D 16" x 42" HYDRAULIC CRANK PIN GRINDER